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ORIGINAL LECTURES.

PSOROSPERMOSIS FOLLICULARIS CUTIS.

A Clinical Lecture,
delivered at the New York Post-Graduate Medical School and Hospital, October 8, 1890.

BY L. DUNCAN BULKLEY, A.M., M.D.,
PROFESSOR OF DERMATOLOGY.

GENTLEMEN: The patient whom I present to you exhibits very clearly the characters of a somewhat rare disease which has recently attracted considerable attention, and the nature of which has given rise to no little study and discussion. I trust, however, that before I have finished you will recognize that the disease has more than a scientific interest; that our remarks of to-day will stimulate you to a further study of the general subject involved; and that some practical good may result therefrom.

The clinical history of the patient before us is as follows:

Mr. M. L., a German, aged forty-nine years, enjoyed good health up the time of his entering the U. S. army, in 1862, in which he served for three years. About a year after entering the service, without any apparent cause, except an immersion in a river, after which he was sick for some time, small, dark lesions appeared upon the forehead and over the sternum, similar to those now present; and from that time, twenty-six years ago, he has never been free from the eruption, which has gradually increased in extent. These lesions began as small, reddish-brown points, or papules, which gradually enlarged, and gave a rough feeling on passing the finger over them; where they were most numerous they coalesced to a greater or less extent, forming patches of a dirty yellowish-brown color.

The increase of the eruption has been gradual, but at times more rapid, especially in the spring and fall, when he has fever, with pains in the bones (which may be malarial) confining him to bed; at these times the affected portions become swollen and red, and, he states, have been mistaken for erysipelas. This latter statement is, of course, of no importance, for we all know how commonly unusual eruptions of a congestive character are called "erysipelas" by those unacquainted with skin diseases. He cannot tell the date at which the various portions of the body became affected, but remembers that the forearms and backs of the hands were attacked about fourteen years ago.

He has two daughters, aged respectively fourteen and seventeen years, also a son twenty-four years of age, all of whom are healthy and free from any eruption. He has lost one child aged six weeks. His father and mother never had any eruption, and he has a brother aged fifty-four years, and a sister aged fifty-seven years, living and healthy. Another brother died at the age of forty-three years of paralysis.

His present condition, as you see, is not very good. He has an anxious, careworn expression, and says that he is so nervous and weak that he cannot attend to any business. The skin lesions extend from the top of the head to the groins and upper thighs. The top of the head, which is bald, you will notice is almost covered with small, brown specks, filling the sebaceous orifices and giving a "nutmeg-grater," sensation on passing the finger over them. On the forehead the lesions are larger, varying from the size of the head of a small pin to that of a medium-sized flat bead; all are slightly raised above the surface, are either flat or rounded, and distinctly hard, though greasy; they are much the same on the cheeks, though here, as on other exposed parts, they are kept worn down by washing and friction. On the chest you see the disease most perfectly developed, and here, and on the abdomen, which is largely covered, the separate, hard, brown papules are more elevated, rougher, and of a darker color. On the back they are less thickly distributed, and on the forearms they are more closely set, forming patches. The groins and upper part of the thighs also exhibit thickly-developed masses of them, but nowhere do we find them so large or prominent as have been described in one or two similar cases; nor do we find a very distinct, fœtid odor which has been spoken of in other cases, although it is faintly marked here, and the patient says that at times it is much more perceptible.

The hands are rather peculiarly affected by the disease; on the backs there are single isolated papules, similar to those seen elsewhere, and also brownish, dirty patches, evidently made up of the papules, closely packed together. Notice also the nails, which are affected in a very remarkable manner. They are all greatly thickened, so as to be raised from their bed, and the thickening is in the centre, while the sides of some are atrophied, giving almost a claw-like appearance to them. All of them are, as you see, very fragile, both at the ends and sides, with furrows and fissures running longitudinally.

Observe, now, more closely the character of these papules, especially on the chest and arms, which appear at first sight to be firmly attached, and to form an integral part of the skin. They are quite easily raised with the point of a knife, without pain, and leave behind them a small depression, reddened, and somewhat resembling the surface left after picking out very small cups of favus; in some of them which I have thus dug out there is a little bleeding at the base. These small masses, then, seem to be rather loosely attached, and are evidently horny and fatty concretions seated in the orifices of the sebaceous glands opening into small hair-follicles. Some of these masses have already been examined under the microscope by my friend, Dr. Pol-

litzer, who reports the presence in them of the *psorosperms* which, according to the French observers to be referred to later, form the diagnostic feature, as they are the cause, of the disease. The wound on the head and one on the arm mark the sites where portions of the skin have been excised by us for further microscopical study, and you also see scars where portions have been removed by others on former occasions. I may here remark that this patient has been the subject of much observation and study by a number of physicians since I first treated him nearly ten years ago, and I may add that various opinions have been held as to the nature of his complaint. I am told that Dr. Lustgarten, of New York, first gave this patient's disease its present (and probably correct) name, and exhibited microscopical sections of the same at the recent Congress in Berlin.[1]

What, now, is this curious affection which has lasted for many years, and resisted varied and thorough treatment, even in hospitals? Although these cases are relatively rare, there are a number of them on record, and, as before remarked, the disease is worthy of study for many reasons.

At first sight this condition suggests an ichthyosis in which the lesions are separated and isolated, and we accordingly find that a similar condition was mentioned by Wilson[2] long ago, with the title *ichthyosis sebacea cornea*. Because of the evident implication of the sebaceous glands Guibout[3] afterward criticised Wilson, and, considering the condition as wholly inherent to the sebaceous glands, he gave it the name *acne sebacée cornée*. Next Lesser[4] considers the subject, and applies the name *ichthyosis follicularis* to the affection described by Guibout, and describes a case in a child, which he thinks is the same disease. Morrow[5] reports a case which is pretty certainly one of the affection under consideration, with the title *keratosis follicularis*, because he considered the nature of the affection to be a cornification of the products of the sebaceous glands and adjacent fine hair-follicles; still later White[6] reported a case of the same disease with the name *keratosis* (*ichthyosis*) *follicularis*, while Leloir and Vidal[7] very recently described it under the name *acné cornée*.

I have thus given you all that I know that bears on the subject previously to the studies of Darier[8] and Thibault,[9] which have turned our thoughts in quite another direction. These observers based their studies on two cases which appeared in the services of MM. Fournier and Besnier in the celebrated Hôpital St. Louis, of Paris. It is a little curious that just before they published their researches on the subject, one of these very cases was presented by M. Hallopeau,[10] one of the physicians of the Hôpital St. Louis, before the Society of the Hospital, under the name "*acné sebacée concrète* with hypertrophy."

In examining the plugs or masses forming the papules, Darier, who is the head of the laboratory at the Hôpital St. Louis, found that the cellular elements composing them did not all behave under staining reagents exactly like altered epithelial cells, and under the microscope he found that there were other bodies which were foreign to the tissues under consideration I cannot, of course, give you all the details of his elaborate microscopical study, but will only tell you that he found certain round or oval bodies situated within the epithelial cells of the lower layers, which he believed to be of parasitic nature. I will give you very briefly Darier's own condensed statement of the appearance of these bodies as he described them at the International Congress for Dermatology and Syphilography in Paris, last year:[1] "The malady is due to special parasites, which appear in the form of round, nucleated bodies, surrounded by a dense membrane, and situated in the interior of the epithelial cells whose nuclei they compress. They are found in great abundance at the bottom of the sac formed by the dilatation of the follicle: the horny plugs themselves are to a great extent composed of the parasites, but they are transformed in this situation into hard and refracting particles."

The number of cases thus far studied is too few to permit of very positive conclusions either in regard to the mode by which the disease is acquired, or as to the exact relation of these bodies to the production of the disease. I may say, however, that these same psorosperm-like bodies have been found by Dr. Bowen both in the sections originally taken from the first case observed by Dr. White, already referred to, and also in a second case which he has recently reported[2] under the title *keratosis folliculosis* (*psorospermose folliculaire végétante*), and, as already mentioned, in the plugs from the case now before you.

The exact nature of these bodies has not yet been fully determined. Darier believes them to be true parasites belonging to the order of sporozoaires, which are unicellular organisms belonging to the animal kingdom, and a subdivision of the protozoaires. This class includes (1) the gregarinæ, (2) the oval psorospermæ or coccidiæ (which is the one found in this disease), (3) the sarcosporidiæ, (4) the psorosperms of fishes or myxosporidiæ, and (5) the psorosperms of the articulates, or microsporidiæ. All these organisms live as parasites on other animals, and in certain cases give rise to fatal maladies. The coccidiæ, which alone interest us here, live almost exclusively in the epithelial tissues of vertebrates, where they are found even in the interior of the cells. They are distinguished from the other groups of sporozoaires, and especially from the gregarinæ, by several characteristics, such as the absence of movement at any period of their development, their intracellular location, their solitary encystment, and the relatively small number of spores formed in the cysts. The ovoid coccidia produce

[1] Annales de Derm. et de Syph., 1890, p. 707.
[2] Diseases of the Skin, London, 6th ed., 1887, p. 348.
[3] Nouvelles Leçons Clin. sur les Mal. de la Peau, 1879, p. 962.
[4] Ziemssen's Cyclop., Bd. xiv. S. 478.
[5] Journal of Cutaneous and Genito-urinary Diseases, 1886, p. 257.
[6] Ibid., 1889, p. 201.
[7] Traité Descriptif des Mal. de la Peau, Paris, 1889, p. 7.
[8] De la Psorospermose folliculaire végétante. Annales de la Dermatol. et de Syph., 1889, p. 597.
[9] Observ. clin. pour servir a l'histoire de la Psorospermose foll. végétante de Darier. Thèse de Paris, 8 Mai, 1889.
[10] Annales de Dermatol. et de Syph., 1889, p. 20.

[1] Comptes rendus, Cong. Internat. de Derm. et de Syph., Paris, 1890, p. 391.
[2] Journal of Cutaneous and Genito-urinary Diseases, January, 1890, p. 13.

cysts in the biliary ducts of the rabbit, and in the human liver and ureters[1] psorosperm cysts have been observed.

Before going further into the subject, and making what I hope will be practical suggestions, allow me very briefly to give the chief facts of the nine cases of this peculiar disease to which I have thus far found reference (including Dr. Morrow's and my own, and also three briefly alluded by Dr. Boeck, of Norway).[2]

1. (Fournier, Darier, Thibault.) Male, aged forty-two years, a bookbinder, affected for seven or eight years; the disease beginning at first insidiously, increased more rapidly during the last two years. The eruption was general.

2. (Besnier, Darier, Thibault.) Female, aged thirty years, affected for three years only, and presenting clinically the same aspect as the preceding.

3. (White.) Male, American, aged forty-nine years. Eruption first appeared beneath the knapsack, after a long march, when in the army in 1862, twenty-seven years before the date of observation.

4. (White.) Female, aged twenty-one years, in whom the eruption slowly developed after she was five or six years old.

5. (Morrow.) Male, aged twenty-one years, a sailor. Eruption appeared about five years previously to observation, soon after beginning a seafaring life.

6. (Bulkley.) Male, German, aged forty-nine years. Disease appeared when in the army, twenty-seven years ago.

7. (Boeck.) Male, aged forty-seven years, who had had the disease sixteen years; numerous encysted coccidia in epidermis.

8. (Boeck.) Male, son of former case.

9. (Boeck.) Male, also a son of case No. 7. From these cases in the same family Boeck argues for the contagiousness of the disease.

You will notice the singular fact that Dr. White's first patient and mine were at exactly the same age when first seen, and that both of them acquired the disease in the army. But Dr. White's patient was an American, and this man is plainly a German, and the ages are really different, as the former case was observed considerably over a year ago. Moreover, on careful inquiry our patient denies that he is the one referred to by Dr. White, although, strange to say, he did see Dr. White, for the first time, only a few weeks ago. Finally, the description of Dr. White's case does not correspond to this.

I might add that Besnier, at the Clinical Society of the Hôpital St. Louis, when Hallopeau presented the case previously referred to, mentioned having seen still another case; and several writers cite the case reported in a thesis of Lutz,[3] as general hypertrophy of the sebaceous system, as one of the affection under consideration.

In regard to the true nature of this complaint, whether these bodies called by Darier *psorosperms* are in reality parasites, and whether they are the true cause of the disease, we unfortunately have as yet no means to determine absolutely. All efforts to cultivate these bodies have failed, nor has anyone succeeded in inoculating animals with the disease, although several attempts have been made. The malady does not seem to be communicated by ordinary means, for three of the nine patients were married men, living with their wives, to whom the disease was not communicated. This, however, proves little, for tuberculosis may likewise exist under similar circumstances without infecting others, and it is only very recently that the contagiousness of the latter has been proved; also, tinea versicolor, known to be due to a vegetable parasite, is rarely communicated from husband to wife. But, as already mentioned, Boeck reported a father and two sons affected by the disease, which he considers proof both of contagiousness and of the coccidia as its cause. Unfortunately the cases were only detailed at a society meeting in Norway, and I have been unable to find a full account or description of them. Several able French and other microscopists and naturalists have agreed as to the parasitic character of the bodies referred to, and the evidence seems very strong that they are the producers of the disease in question.

But the most interesting and perhaps important part of the question lies in the fact that more or less similar bodies have been found in the tissues of several other maladies, which are quite distinct from the present one, and from each other, in their clinical features. So marked are these microscopical characters that Darier has proposed the name *psorosperms cutanées* to designate the group in which they should be placed. The first of these diseases is the so-called molluscum contagiosum with which all are familiar. This disease Neisser,[4] Darier, and others cited by them, believe to be due to the presence in the epithelial cells of similar parasites—the so-called "molluscous bodies" which have long been known; these resemble in a certain degree the psorosperms already described, and are thought to be identical or at least analogous to them.

These curious round bodies have also been found by Darier, Wickham[5] and others, in that peculiar form of epithelioma of the nipple known as Paget's disease; and Darier further states that Malassez, in 1876, "noticed in a large number of epithelial tumors, cellular bodies, granular or refracting, sometimes encapsuled, which presented certain analogies to the psorosperms of the rabbit," and that Cornil has reported having seen analogous organisms in certain cancers of the uterus.

Here, then, lies the real interest in the study of the disease before us, as well as the important and practical element previously alluded to; namely, the possible results which may come from a thorough investigation and knowledge of the effects in the tissues of an order of parasites, the psorosperms, which have been hitherto unrecognized—if, indeed, the assumption is correct that the three maladies in question are really caused thereby. And you will readily see, that if the observations in regard to epithelioma are correct a great step has been taken in the direction of discovering the cause of cancer. It has been recognized for some time that cancer is occasionally communicated from one person to another, which, to a certain degree, sustains the parasitic origin of the disease. The recognition of the causation of pus by

[1] Journ. of Cutan. and Genito-urinary Diseases, 1889, p. 318.
[2] Boeck: Monatshefte für prakt. Derm., Bd. xi. No. 3, p. 132.
[3] Hypertrophie Gén. du Syst. Sebacée. Thèse de Paris, 1850.
[4] Viertelj. für Derm. und Syph., 1888, p. 558.
[5] Comptes rendus, Congrès Internat. de Derm. et de Syph., Paris, 1890, p. 385.

the various forms of micrococci has been prolific of good in surgery; the discovery of the bacillus in tuberculosis is working beneficially in the direction of the prevention of the spread of that disease, and may yield results in regard to treatment; and if it should be fully and positively determined that cancer is due to the presence of *psorosperms*, may we not hope for more rapid progress in its prevention and treatment than has hitherto been attained?

Thus, you see, gentlemen, that cutaneous pathology, always an interesting study, leads the way to investigations which may be of the greatest importance.

In regard to therapeutics, in the patient before us the discovery of the psorosperm in his tissues should give us a clue to a method of treatment which, theoretically at least, promises more benefit than he has received in the past; for, as you have heard, his disease has lasted about twenty-seven years, and he has never been much benefitted by treatment. It remains to be seen how much can be accomplished when treatment is directed against the parasitic element which we have assumed as the cause. Unfortunately, but slight results were obtained during the short time that the Paris cases were under treatment based on this view of the disease. But this need not deter us, for you can readily understand that there may be great difficulties in attacking a parasite *in situ*, and in this disease the bodies referred to are seated very deep in the skin, and penetrate even far beneath the horny plug that you saw me dig out. The existence of the bacilli of tuberculosis and leprosy is now established, but we have, as yet, no means of reaching them *in situ*.

In the present case I shall hope to make many trials of different local remedies in order to reach and destroy the parasite, and shall hope to show you the results. Mercury, iodine, and sulphur, in their various preparations, are the agents we will chiefly depend upon, and some of these covered by impermeable dressings should, I think, succeed in penetrating and destroying the organisms which we believe to exist in the tissues of this man.

ORIGINAL ARTICLES.

THE VALUE OF EXERCISE IN THE TREATMENT OF THE PELVIC DISEASES OF WOMEN.[1]

BY JOHN H. KELLOGG, M.D.,
OF BATTLE CREEK, MICH.

THE propositions which I shall undertake to maintain in this paper are the following:

1. That defective muscular development is a prime factor in the etiology of a large number of the pelvic disorders to which civilized women are subject.

2. That the mode of dress common among civilized women is a cause of deficient and asymmetrical muscular development.

3. That the dress commonly worn by civilized women is productive of such disturbances of the relations and functions of the abdominal and pelvic viscera as directly lead to the production of functional and structural changes in the uterus and its appendages.

4. That properly-graduated exercises, with adjustment of the clothing that will permit free and unrestricted movements of every group of muscles in the body, are of great importance in the management of a large class of pelvic disorders.

The comparative immunity from the disorders peculiar to their sex, as well as from the pain and accidents connected with childbirth, of savage and peasant women, is a fact so well established that the presentation of new evidence is scarcely necessary. Personal study of this subject among Indian women of various tribes, including the primitive Yuma tribe, of New Mexico and Arizona, among Chinese women, and especially among the peasant women of Italy, Germany, France, and England, has enabled me to confirm the observations of Engelmann and others who have given special attention to the question. During my study in European hospitals, I was forcibly struck with the comparatively small number of cases of chronic pelvic disease in women who from early childhood had been trained to muscular labor of a varied character. Such disorders as prolapsus uteri, posterior flexions and versions, and chronic inflammation of the uterus and its appendages are almost unknown among married women of this class who have led chaste lives. Among the peasant women of Europe, pelvic disorders are chiefly those which result from childbirth; and are largely attributable to the carelessness and stupidity of ignorant midwives and the inability to secure the necessary rest and care during the lying-in period. It is surprising to one whose gynecological observations have been chiefly confined to the better classes of American women, that the morbid conditions caused by mechanical injuries, such as lacerations of the cervix and perineum, give rise to comparatively little suffering in women who have a good muscular development. I have frequently seen German and French peasant women in whom the entire uterus, as well as a considerable portion of the bladder and rectum, had been outside of the body for many years as the result of injuries during childbirth or of imprudence afterward, who sought relief not on account of pain, but solely on account of the mechanical inconvenience. This freedom from pelvic diseases and from the extreme suffering which commonly accompanies these disorders in women of the higher classes, may fairly be attributed, in large part at least, to the excellent muscular development resulting from laborious lives.

The young peasant woman of Germany or Italy, who from early childhood has been accustomed to accompany her elder brother in the field, digging, sowing, reaping, threshing out the grain with a flail,

[1] Read before the American Association of Obstetricians and Gynecologists, Philadelphia, September 16, 17, and 18, 1890.

or following the plow, is no more subject to diseases of the pelvic organs than is her brother. If she receives some slight injury to the cervix or perineum in childbearing, she does not thereby become a miserable invalid, and if she experiences any inconvenience, it is merely a mechanical one which she will probably consider scarcely worthy of attention. The peasant woman exposes herself to all sorts of weather without regard to her condition. Her bare feet are exposed to cold and dampness without reference to the approach or presence of the menstrual period. I have seen in that portion of England known as the Black Country, vigorous women old and young engaged in the laborious employment of brickmaking, handling and carrying for many hours each day masses of wet clay which the majority of American women could not even lift. The occupation of these women necessitates constant exposure of the feet as well as the hands to dampness; and yet I was assured by the women themselves, as well as by an intelligent local physician, that they seldom if ever suffer inconvenience from exposures which in many women would produce fatal results. The frugal dietetic habits of these women and their open-air life must have something to do with this exemption from the diseases peculiar to the sex; yet I think this remarkable immunity is more largely due to the unusually symmetrical and vigorous muscular development which they derive from their habits of life. This view is sustained by the anatomical and physiological importance of the muscles in maintaining the position of the uterus and its appendages in relation to the pelvis and to the other viscera of the pelvis and abdomen; and by the relative frequency of uterine displacements and other forms of pelvic disease in women of feeble muscular development who have apparently not been exposed to any cause sufficient to induce such disorders in a vigorous, healthy woman.

The maintenance of the uterus and its appendages in their normal position may be said to be wholly dependent on muscular structures. This may also be said of most of the viscera of the abdominal cavity. The pelvic floor which closes the common outlet of the pelvic and abdominal cavities is chiefly composed of muscles. The vaginal and rectal outlets are closed by muscles. The muscular structures which compose the pelvic floor are sustained by other muscular structures connected with the pelvic bones above. The so-called ligaments of the uterus which play so important a part in maintaining its position are largely made up of muscular fibres. The round ligaments are in part composed of voluntary muscular fibres. The antero-lateral walls of the abdomen are chiefly made up of muscles which in a well-developed woman are exceeding strong and firm.

A study of the functions of the round ligaments, the results of which I presented at one of the meetings of the American Association of Gynecologists and Obstetricians, has convinced me that these muscular structures play a most important part in keeping the uterus in position, acting, not only as bands or "mooring-ropes," as Dr. Alexander calls them, but through the muscular contractility of which they are capable. The theory of their action the correctness of which I believe I have demonstrated, is that by contracting simultaneously with the abdominal muscles, they tilt the uterus forward, and thus prevent its being forced backward during violent contraction of the abdominal muscles, the uterus being drawn out of the current of downward pressure. The contraction of the muscles which compose the pelvic floor, when these muscles are properly developed, prevents abnormal lowering of the pelvic floor and of the pelvic organs. A weak, relaxed condition of these structures is usually found in women of feeble mscular development.

Uterine prolapse, retroversion, and retroflexion, and the various forms of ovarian prolapse which accompany these displacements are seldom met with among chaste unmarried women of savage or semi-civilized nations, but are very frequent among young women in America, and among the wealthier classes of all civilized countries. In this country, these conditions, when found in young women, are almost invariably attributed to some accident or imprudence in muscular exercise, such as jumping from a carriage, a fall on the ice, jumping the rope, walking too great a distance, lifting a pail of water, carrying a baby, or some similar circumstance. The baneful effects of stair-climbing have been dwelt upon by physicians as well as over-careful mothers. Not infrequently such light exercise as running a sewing-machine, or standing upon the feet behind a counter, has been charged with producing the worst forms of uterine displacements and other pelvic diseases. I do not say that such things never bring about uterine or pelvic diseases, but I have long been convinced that the causes mentioned above are of slight importance, and that back of them is an etiological factor of a general and fundamental character, the essential nature of which is deficient muscular development.

The mode of dress common among civilized women is productive of pelvic disease, not only by its mechanical effects upon the contents of the abdomen, but by its interference with the normal respiratory movements and the free action of the muscles of the back and abdomen.

In normal breathing, the shape of the chest is changed in the act of inspiration in such a manner that all its diameters are increased. The greatest increase, however, is in the longitudinal diameter

due to flattening of the diaphragm, and in the transverse diameter of the lower part of the chest, due to the action of the inspiratory muscles, and according to Bruger, also in part due to the depression of the abdominal viscera by the contracting diaphragm. In normal respiration in children of either sex, and in both men and women of savage tribes, in which the dress of the two sexes is practically alike, the chief movements noticeable in inspiration are widening of the chest at its lower part and bulging of the abdominal wall. There is at the same time a rhythmical action of the muscles of the pelvic floor induced by the increased abdominal pressure which results from the flattening of the diaphragm.

That the respiratory movements are practically alike in adults of both sexes, I think has been fully established by the observations of Mays and others, as well as by my own studies upon Indian women of various tribes, Chinese women, Italian peasant women, and upon American women whose breathing has never been interfered with by tightly-fitting clothing.

The relation of corsets and tight bands to respiration has usually been studied solely with reference to their influence upon the lungs. The important relation of the respiratory process to the abdominal and pelvic viscera has too often been overlooked, although the disturbance of the normal relation existing between respiration and the circulation of the blood in the abdominal and pelvic viscera is undoubtedly of far greater importance than any interference with the respiratory process occasioned by constriction of the waist.

The effect of inspiration is to increase abdominal tension. This is accomplished by the flattening of the diaphragm, which is facilitated by the increase in the transverse diameter of the lower part of the chest induced by contraction of the serrati and other inspiratory muscles. The effect of abdominal tension is to hasten the emptying of the veins of the portal circulation, in which there is a natural tendency to retardation as the result of the resistance of the hepatic capillary system. In normal respiration, in which the intra-thoracic pressure is diminished by proper expansion of the chest cavity, this emptying of the portal circulation is also facilitated by a sort of suction which draws the blood from the abdominal viscera into the thoracic cavity. Thus, in normal respiration, there is a double action, the tendency of which is to accelerate the circulation in the abdominal and pelvic organs; and it is reasonable to suppose that the health of these organs must largely depend upon a continuous and efficient action of this pumping process which is so essential a feature in the maintenance of the blood-current.

The proper action of the chest may be aptly compared to that of a pair of bellows, the lower ribs to which the strong breathing-muscles are attached, representing the handles. The breathing-apparatus of a woman whose waist is constricted by a corset or tight band is nearly as much embarrassed as would be a pair of bellows with the handles tied together. The upper costal respiration so conspicuous in women who constrict the waist is not seen among savage women, nor in a woman whose respiratory organs have not been restricted by improper clothing. That this mode of breathing is quite abnormal might be inferred from the structure of the upper part of the chest, which is certainly not such as to suggest any considerable degree of mobility. This thoracic breathing is not only abnormal, but as I think I have already shown, it may produce disease. This is true of ordinary respiration, and is most emphatically true of forced respiration, such as is induced by singing or active muscular exercise, under the imperative demand for an increased supply of air. The respiratory muscles are then made to act with undue violence. In consequence of the constriction and the compression of the abdominal walls by the corset, the force is largely expended upon the organs of the pelvis, which are forced down out of position. The pelvic floor is more yielding than the rigid walls of the chest, and is depressed, thus laying the foundation for chronic displacement.

A civilized woman wearing the common dress, cannot expand her waist more than one-fourth of an inch when taking a deep inspiration. The expansion must occur somewhere, and the constriction of the waist forces the expansion to take place at either the upper or lower extremity of the trunk; the greater resistance of the upper ribs and the yielding character of the structures which form the floor of the pelvis cause depression of the pelvic floor to occur with lowering of all the organs which are dependent on it for support.

I have devised an instrument for the study of the influence of constriction of the waist upon the pelvic floor, which consists simply of a lever attached to an upright, and an adjustable support furnished with a vernier, against which one end of the lever plays while the other end rests upon the perineum. The fulcrum of the lever is so placed that the recording end of the lever has an amplitude of movement just five times that of the end placed against the pelvic floor. The instrument can be used with the woman either standing or lying. By the use of this instrument I find that lacing the corset as tight as it is ordinarily worn depresses the pelvic floor from five to twelve millimetres. I have sometimes observed a rise in the pelvic floor of fifteen millimetres immediately after the corset was loosened.

Dr. Trastour, an eminent French physician, has

clearly shown that what he terms the *statique abdominale* has an important relation to the health of the abdominal viscera. The relations of the several organs which occupy the abdominal and pelvic cavities are such that any considerable change in position necessarily results in disease. The stomach, dragged out of place, loses its natural tone, its walls become relaxed, dilatation occurs, and the patient suffers from all the distressing symptoms of gastric neurasthenia. The constant dragging upon the liver and the right kidney may displace these organs. Prolapse of the organs which normally occupy the upper part of the abdominal cavity necessarily compels the displacement of the organs beneath them, leading to what is termed by Glenard, and other French writers, *enteroptosis*. Prolapsed intestines become atonic, from the disturbance of the portal circulation, and not infrequently a pseudo-stricture of the large intestine is occasioned by the bowel folding upon itself, caused by the depression of its central portion, which is more easily dragged down than the ascending or descending portion. Obstruction leads to fæcal accumulation and dilatation. Such disturbances of the relations of the vsicera will be found in a large proportion of women suffering from pelvic disorders.

In one hundred cases of pelvic disease taken without selection and in the order in which they came under observation, I found disturbances of the normal relations of the abdominal viscera in ninety-four. The stomach and bowels were prolapsed in all of these cases. There was dilatation of the stomach in more than one-half of them. The right kidney was distinctly movable and had fallen below its normal position in thirty-seven cases. In twenty-seven cases the kidney had fallen so far below the normal position that it was freely movable. In three cases both kidneys were prolapsed. In four cases the liver was very considerably prolapsed; in three cases almost the entire organ was at the inferior border of the lower ribs. In one case, the spleen, which was four times its normal size, enjoyed the freedom of the entire abdominal cavity. When first noticed it was lying between the uterus and the bladder, and was at first thought to be a fibroid growth connected with the uterus.

In the six cases in which there was no disturbance of the relative positions of the abdominal organs, the patients had unusually well developed muscles and the pelvic disease was distinctly traceable to other than mechanical causes.

Mr. Lockwood, of St. Bartholomew's Hospital, London, has shown by elaborate post-mortem studies that hernia is accompanied with prolapse of the mesentery and the attached bowel to the extent of from four to nine inches, and in an address upon the subject he called attention to the influence of tight lacing in producing this prolapse in women.

I have made a large number of measurements of civilized and uncivilized women to determine the relations of the circumference of waist to the height, and other dimensions.

In one hundred civilized women, all eighteen years of age or over, the following are the average results:

	Height. (Inches.)	Waist (Inches.)	Percentage of height.
American women . . .	61.64	24.44	39.6
English women (brickmakers who wear heavy skirts) .	60.4	25	43.3
French women . . .	61.6	28	45.4
Civilized Telugu women of India	60.49	24.65	40.6
Chinese women	57.85	26.27	45.4
Yuma women	66.56	36.84	55.2
Civilized man—American .	67.96	29.46	43.3

A few words of explanation are necessary in order to present the full significance of the above figures. The civilized corset-wearing American woman has the smallest waist of any of the classes examined. The next in order is the Telugu woman, who suspends her clothing by a cord tightly tied about her waist. Dr. E. J. Cummings, of Ramapatam, Nellore District, India, who kindly made for me the measurements from which the above figures relating to Telugu women are deduced, tells me that it is customary with those women to draw the cord which suspends their clothing as tight as possible; yet the amount of harm done thereby does not seem to equal the mischief accomplished by the American corset. The women brickmakers of England doubtless diminish the size of their waists and produce considerable distortion of their figures by wearing the many heavy skirts suspended by bands drawn tight about the waist. Civilized man, next in the scale, has a much larger waist than civilized woman, yet does not equal in this respect the women who have had an opportunity to develop naturally. The measurements which I have made of savage men and women of the same tribe convince me that women naturally have larger waists in proportion to their height than men.

Properly-graduated exercises, with such an adjustment of the clothing as will afford opportunity for free and unrestricted movements of every group of muscles in the body, are a most important therapeutic means in the management of a large class of pelvic disorders. The exercises which I have employed are, in general, light calisthenics, consisting of free hand and body movements, and the use of wooden dumb-bells, Indian clubs, wands, chest-weights, and various gymnasium apparatus for bringing into play special groups of muscles, walking exercises, breathing exercises, and Delsarte. I also employ exercises with light iron dumb-bells, and light exercises on a

trapeze, swinging rings, and horizontal bars, in suitable cases. The weight of the dumb-bells, clubs, and chest-weights, or other apparatus to be used, is prescribed for each patient, as are also the duration of the exercise and the number of strokes in the use of rowing-machines, and similar apparatus. The employment of a variety of apparatus, and of different forms of exercise, is important, as it not only encourages patients to take a larger amount of exercise than they otherwise would do, but enables them to do so without injury by bringing into play different groups of muscles or different combinations of muscular groups.

The exercise of lying upon the back, and alternately raising the legs from a horizontal to a perpendicular position is particularly valuable. Fixing the legs, and resting the body upon an incline adjusted at an angle suited to the patient, is another special exercise of value.

Resting in a horizontal position, face downward, sustaining the weight upon the elbows and toes, with the body held rigid and free from the supporting surface, is an excellent exercise to develop the muscles of the back and abdomen. This exercise may be varied by alternately raising and lowering the body, resting a few seconds in each position. Drawing the body up from a supine position to an angle of forty-five degrees, by catching the toes on the round of a ladder, is an exercise of great value for patients who are able to take it. It not only strengthens the muscles of the trunk, but at the same time empties the portal veins.

A breathing exercise which I have found of great value is the following: Placing herself in the genupectoral position, the patient takes a deep abdominal inspiration, then expels the breath by forcibly contracting the abdominal muscles, at the same time drawing up as strongly as possible the muscles of the pelvic floor. By this means the round ligaments, if they have not undergone complete degeneration, as well as the abdominal and perineal muscles, are vigorously exercised.

The passive and "active-passive" exercises of the Ling system of Swedish movements are also of great value in these cases, as I can testify after having employed this system for nearly sixteen years. Of great value, also, are manipulations of the abdomen, especially directed to the restoration of prolapsed viscera to their normal position. The circulation is accelerated; prolapsed bowels, kidneys, liver, and spleen, may be restored to position, and thus by making room above, the prolapsed organs of the pelvis are encouraged to resume their normal positions. I have frequently seen excellent results from the employment of abdominal and pelvic massage in conjunction with general and special gymnastic exercises, and various forms of active and active-passive Swedish movements.

The good results of exercise are well shown by the following figures, which represent the gain in strength of the arm, leg, trunk, and respiratory organs respectively, as the result of physical training of the kind referred to. In one hundred women the average gain in two months was as follows:

Arms	16.2 per cent.
Legs	28.4 "
Trunk	28.1 "
Respiratory organs	28.6 "

The average gain of strength for four months was as follows:

Arms	51 per cent.
Legs	55.9 "
Trunk	54.9 "
Respiratory organs	46.6 "

The disproportionately greater gain shown in the longer period, clearly demonstrates the importance of time as a factor in a system of treatment of this kind. There must be time for the muscles to grow.

The great advantage of exercise in this class of cases is best appreciated by the study of individual cases. For example: I have frequently seen the aggregate strength of arms, legs, trunk, and respiratory organs, increased by three months of exercise more than 200 per cent., and I have many cases on record showing an increase of more than 400 per cent. In one instance the rate of increase was nearly 700 per cent.

A CASE OF FOREIGN BODY REMAINING IN THE EYE FOR TWENTY YEARS, FOLLOWED BY ABSCESS IN THE SCLERAL WALL.

BY B. L. MILLIKIN, M.D.,
OF CLEVELAND, OHIO.

ON March 18, 1871, E. M. O., then about ten years old, was struck in the right eye with a fragment of a musket-cap, which he supposed at the time did not enter the eye. However, the piece was not found. Following the injury the eyeball was greatly inflamed, and he was confined to his room for nearly three months. For two years after this the eye slowly improved, so that vision was pretty fair and he could readily read ordinary type.

The eye gave him no further trouble until about 1883, when he had a severe attack of inflammation which produced almost complete blindness. After this attack the eye again improved, and vision became fair, and he had no more serious trouble until the latter part of 1887, when the eye became painful and injected, and the sight failed.

I first saw the patient, February 28, 1888, when he gave me the above history, and stated that three or four days previously the eye had again become

inflamed, and that he was then suffering great pain through the eyeball and the side of his head

Examination at this time revealed the following conditions:

In the cornea to the outer side of the pupillary margin and a little below the horizontal meridian, was a linear opacity extending outward and slightly downward, perhaps 2 mm. in length. Lying directly behind this and in the same direction was a slit in the iris, extending from near the pupillary border to the outer margin of the iris and so wide toward the periphery that the red reflex of the fundus was readily seen, and also the border of the lens. After several instillations of homatropine hydrobromate the pupil was well dilated, the dilatation being free in all directions except at the border near the slit, where the iris was attached to the anterior capsule. Both the ophthalmoscope and oblique illumination showed, directly behind the slit in the iris, an opaque track through the body of the lens, through which the foreign body had evidently penetrated. In the anterior portion of the vitreous, in the lower outer quadrant, was plainly seen, both through the pupil and the slit in the iris, a grayish-white body of considerable size and projecting into the vitreous. This had the appearance of an encysted body, being quite different from a sarcoma or other neoplasm. There was also a broad choroidal crescent and numerous floating opacities in the vitreous. The vision at this time in O. D. was $\frac{6}{\text{XXXVI}}$ and in O. S. $\frac{6}{\text{VI}}$.

Directly over the position of this body the sclera and conjunctiva were much injected, and painful on pressure. With slight pressure over this point the body could be seen to project farther into the vitreous. At no other portion of the eyeball was there any tenderness. Tension was normal. He was put upon instillations of atropine solution three or four times daily, and a boric acid collyrium, together with hot applications.

On March 7th he reported that four days previously he had had a very sharp attack of pain through the eyeball and side of the head, but that it subsided after two or three hours, and after that the eye continued to do well. The only change in the appearance of the eye noticed at this time was a peculiar discoloration over the seat of the foreign body as if the sclera was partially eroded.

After recovering from this attack there was no more trouble until September, 1889, when he had another severe inflammatory attack; but owing to my absence I did not see him again until November 27, 1889, when I found the eye in a state of active inflammation, and the vitreous showing numerous opacities, especially in the neighborhood of the foreign body. Under active treatment this attack slowly subsided.

Nothing noteworthy occurred until about the middle of December, 1889, when an enlargement of the sclera began to show itself directly over the position of the foreign body. This increased quite rapidly, so that by December 31st it was quite pronounced. It was somewhat irregular in shape, hard to the touch, and felt as if the sharp edge of the piece of cap might be forcing its way through. Pressure over this point produced much pain, while other portions of the eyeball were quite free from pain. No changes seemed to take place in the interior of the eye.

By January 14, 1890, the eye was free from general inflammation and had been so for some days, but the projection over the foreign body had increased. It was quite circumscribed, and there was no redness except in the immediate neighborhood of this projection. I believed that the piece of cap had become encysted, that gradually, from the repeated inflammatory attacks, the increase of connective tissue, and the action of the ciliary muscle it had worked its way through the retina and choroid and into the sclera, and that it would eventually cut through the sclera externally.

Following ordinary surgical principles the proper procedure seemed perfectly plain, viz.: to give exit to whatever was contained in the swelling. Under cocaine anæsthesia a needle was passed through the most prominent portion of the projection until it came in contact with a hard body. Then a triangular portion of the conjunctiva was dissected from the sclera at this point and a free incision made directly into the swelling. From this three or four drops of pus escaped, when the anterior walls of the sac collapsed.

With a spoon I then scraped out a number of black particles which were hard and under a lens seemed to be metallic. These, I have no doubt, were disintegrated portions of the piece of cap.

As much as possible of the interior of this sac was removed with the spoon, forceps, and scissors. A needle was passed in two or three places directly through the sac and into the vitreous, in order to determine definitely if any hard substance remained.

The extreme thickness of the scleral wall at this point surprised me very much. It certainly was more than one centimetre thick, and notwithstanding the freedom with which I scraped out, and tore out with the forceps, and cut out, with scissors, the hard portions, I did not enter the vitreous or disturb it in the least.

Both before and during the operation the eye and its appendages were thoroughly washed with 1-to-5000 bichloride of mercury solution, and every precaution was taken to keep the wound clean. The cavity of the wound was freely washed with the bichloride solution, and the eyeball was dressed with a compress moistened with the same solution, and with a bandage. The pain from the operation, notwithstanding the very free use of cocaine, was considerable.

The patient recovered without a bad symptom. When an ophthalmoscopic examination could be made I found that the body in the vitreous chamber, previously so prominent, had entirely disappeared and could not be seen through the dilated pupil. By January 22d, all tenderness had subsided, except a slight amount over the wound. Vision $= \frac{3}{\text{XXX}}$.

Up to the present time there has been no pain and no tenderness, even over the point of the

wound, where there had been tenderness on pressure for six or seven years at least.

At the present time, on looking well forward through the pupil, there is a slight whitish reflex, but this has not increased since the wound healed, and the opacities in the vitreous have slowly disappeared.

The scar externally is not noticeable, except on the closest scrutiny, and the condition of the eye is better than it has been for years. The patient, a merchant, is able to work steadily, and suffers no inconvenience whatever.

I have given a detailed account of this case because of the unusual features connected with it, and because I have not been able to find any report of a similar case in the literature at my command.

SALOL IN TYPHOID FEVER.

BY W. C. CAHALL, M.D.,
OF PHILADELPHIA.

DURING the past two years typhoid fever has been more than usually prevalent in the northwestern section of Philadelphia, and I have been impressed as never before with the fact that the ordinary treatment of this fever is very unsatisfactory. The patient is either vigorously treated with dilute acid, turpentine, or a mixture of tincture of iodine and carbolic acid, all of which, owing to the nausea they produce, are difficult and at times impossible to administer methodically; or, on the other hand, the patient is not treated at all, save when urgent symptoms develop.

At about the beginning of the increased prevalence of the fever in this city I was led, by reading reports of the use of salol for the *diarrhœa* of typhoid fever, to use it as a *specific* remedy in place of the tincture of iodine and carbolic acid mixture. Salol has the advantage of being acceptable to a sensitive stomach, so that its use can be systematically continued, an all-important feature of specific treatment. For a little more than a year and a half I have persistently treated every case of typhoid fever which has fallen into my hands with salol, rarely using anything in addition during the whole course of the fever, and so far with the most gratifying results.

Contrary to my usual custom, I have kept a strict record of every case of this fever that I have treated since beginning the use of salol. After eliminating all the cases in which, from their short, mild course, or from the absence of one or more of the characteristic symptoms of this fever, the diagnosis could be questioned, there remain sixteen cases, of undoubted typhoid fever.

It is not my intention to give a detailed history of each of these cases, but rather to give briefly the results of my observations on the whole.

The dose and mode of administering.—The dose of salol should be at least three grains every two hours, day and night, from the time the diagnosis is made until the morning temperature reaches normal. My experience has been that salol given in pill-form does not give as good results as when given in the form of a powder. This is probably due to the more rapid and complete absorption of the powder in the intestine.

The effects upon the symptoms.—The dry, rough condition of the tongue, so troublesome in this fever, was rarely seen in the sixteen cases, and if present, seldom lasted long.

Salol is insoluble in the saliva and is practically tasteless, hence, in the first few days of the fever, when the stomach is irritable and when there is nausea salol is easily taken, and in its quieting effects is equal to bismuth.

Upon the intestines the effects of the drug are marked; tympany disappears more rapidly than under the use of turpentine, and gives no further trouble throughout the course of the fever. Diarrhœa, no matter how excessive in the beginning, seldom requires any other remedy to control it, but progressively improves. Of hæmorrhage there were a few instances, but in no case was it repeated so frequently as to call for the classical "lead and opium" pill. Tenderness in the right iliac region was invariably present, but diminished without special treatment. Peritonitis supervened in no case. The rose-colored spots were present upon the abdomen and chest of all the sixteen cases, sometimes profusely, but in no case did I notice a second crop.

The effects upon the temperature were noticed within the first few days. Under ordinary treatment the temperature usually rises for the first ten days of the disease, but under the use of salol the temperature seldom rises after the first day of treatment, and after the first week steadily, and more or less rapidly, falls. In several cases the temperature reached normal by a fall of from two and a half to three degrees between evening and morning. In the first case in which this happened I confess that I passed a day of anxiety, fearing hæmorrhage. After the temperature reached normal there was a slight evening rise for two or three days, after which it remained normal.

The pulse does not increase in frequency to the end of the first week when salol is used, but remains full and seldom exceeds one hundred. In none of the cases was the action of the heart such as to require alcohol.

The only untoward effect of salol was the partial suppression of the urine in some cases, but in no case was it necessary to suspend the treatment. I have seen the same symptom produced by turpen-

tine, but it is a point which should be carefully looked after, for in some cases the kidneys might be damaged by the carbolic acid which is set free by the salol. Albuminuria was no more frequent than is usually seen in cases of typhoid fever. All the cases are now in good health.

Complications.—One of the happiest features of this treatment was the infrequency of complications. With the exception of two cases of pneumonia, one of which developed when convalescence was almost established, and a few cases of slight hæmorrhage, there were no complications, and convalescence was invariably rapid and uninterrupted. This is probably largely due to the fact that salol does not disturb the stomach or interfere with digestion, so that the desired amount of nourishment can be given throughout the course of the fever, which cannot often be done when the stomach is continually disturbed by acid, turpentine, or the tincture of iodine and carbolic acid mixture.

Duration.—The average duration of the sixteen cases, not including the two complicated by pneumonia, was seventeen days. Some had a normal temperature at the end of the second week and a few in slightly over three weeks. There were no deaths.

Whatever the differences of opinion as to the cause of typhoid fever it is pretty definitely settled that, after a certain stage, the disease is a septicæmia, due to the ulceration of Peyer's glands. The natural tendency of the fever is to terminate about either the fourteenth or the twenty-first day, and when an intestinal antiseptic, such as salol, is used, which prevents the ulceration from infecting the system, the natural tendency to recovery is increased.

THE ANASTOMOSES OF THE PORTAL VEIN WITH THE SUPERIOR VENA CAVA, INFERIOR VENA CAVA, AND AZYGOS VEIN.

BY F. TISCHER, M.D.,
OF SAN FRANCISCO, CALIFORNIA.

AT the German Chirurgical Congress of 1889 Pietrzikowski spoke of the frequency with which pneumonia follows the reduction of incarcerated hernia, either when taxis alone is employed or when herniotomy is performed. Disregarding those cases in which there are concomitant chronic pulmonary diseases of old persons, such as emphysema and bronchitis); those in which there are coexisting inflammatory processes in the herniotomy wound and peritoneum; and those with complications induced by the inspiration of expectorated particles, such as lobar pneumonia, there still remains a series of conditions for which no plausible explanations exist.

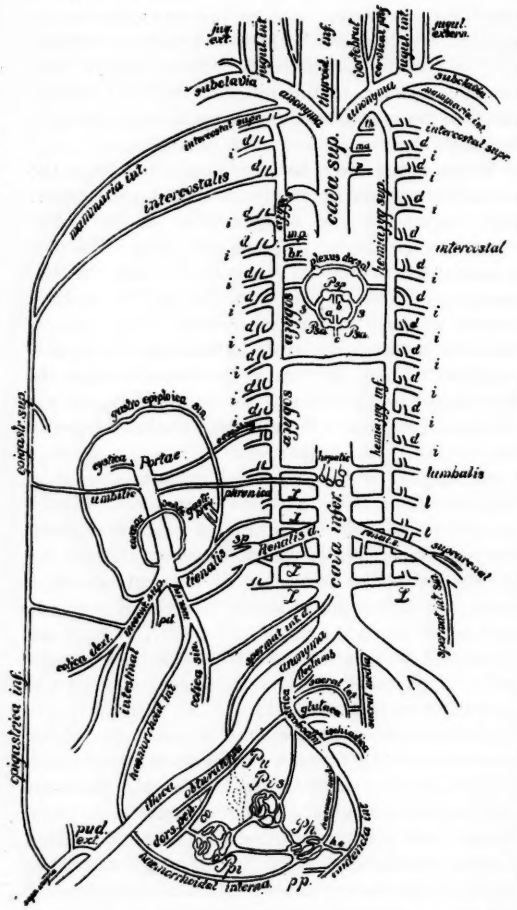
Pietrzikowski maintains the view first promulgated by Gussenbauer, that pneumonia following the recent reduction of strangulated hernia has an embolic origin. The thrombi originating in consequence of the disturbed circulation in the capillaries and small veins of the constricted gut and its mesentery, must, after the restoration of the circulation following the reduction of the strangulated hernia, reach the circulation, and in this way give rise to emboli. As long as the thrombi remain uninfected they act only as temporary infarcts, but if they become infected in the intestinal wall the emboli must, of necessity, lead to inflammation of the pulmonary tissues.

In answering the question, What course must the thrombi, originating in the intestinal and mesenteric regions in the neighborhood of the portal vein, pursue in order to reach the lungs? Pietrzikowski does not deny the possibility of small thrombi reaching the inferior vena cava through the capillary system of the liver and the hepatic vein. Larger thrombi, on the other hand, by avoiding the hepatic capillary system, can reach the lungs through the free anastomoses, between the portal vein and the inferior vena cava. Pietrzikowski makes no special mention of these anastomoses.

Besides the above described anastomoses, others also are of interest. By cutting off the circulation in the portal vein, as occurs in hepatic cirrhosis and in thrombosis of the portal vein, there is the possibility of the formation of a collateral circulation by which the blood of the portal vein can still reach the vena cava. Of course, we must not overvalue the significance of this collateral circulation, as the clinical course of hepatic cirrhosis sufficiently demonstrates.

Further, these anastomoses appear to be the routes for the transmission of infectious matter which originates in ulcerative processes in the intestine, and causes pulmonary inflammations, as is sometimes seen in typhoid fever. Undoubtedly, the lobular pneumonia of typhoid fever is traceable, partly to the scanty expectoration of the bronchial secretion, and partly to the frequent inspiration of inflammatory products from the naso-pharynx. The occurrence of true lobar pneumonia in this disease can be explained as follows: The typhoid bacilli, having passed through the capillary system of the liver, are carried either to the lungs and there find a favorable soil in the catarrhal areas, or a detached thrombus containing typhoid bacilli originating in the infiltrated and ulcerated Peyer's patches passes by means of anastomoses of the portal vein directly to the lungs, and there is firmly lodged without having passed through the hepatic system. Of course, it is strange that in typhoid fever inflammatory areas seldom exist in the liver, notwithstanding that the main branch of the portal is the nearest

route to this organ. One must admit that the liver is as unfavorable a seat for the growth of typhoid bacilli as it is a favorable one for the poison of dysentery which causes suppurative hepatitis. In all probability the infected thrombi originating in



a. vena medullæ spinalis anterior. *b.* vena medullæ spinalis posterior. *br.* vena bronchialis. *c.* vena basivertebralis. *co.* vena communicans obturatoria *d.* ramus dorsalis venæ intercostalis. *he.* vena hæmorrhoidalis externa. *i.* vena intercostalis. *l.* vena lumbalis. *ma.* vena mediastinica anterior. *mp.* vena mediastinica posterior. *p.* vena pericardiaca. *pd.* vena pancreatico-duodenalis. *Ph.* Plexus hæmorrhoidalis. *pp.* vena profunda penis. *Ppi.* Plexus pubicus impar. *Psa.* Plexus spinalis anterior. *Psp.* Plexus spinalis posterior. *Pu.* Plexus uterinus. *Pvs.* Plexus vesicalis. *s.* ramus spinalis. *sp.* vena suprarenalis. *th.* vena thymica.

Peyer's patches, on their way through the anastomoses of the portal vein with the superior and inferior vena cava, occasion the pneumonia.

It may at this point be of interest to consider briefly these anastomoses, as shown in the accompanying drawing, prepared by the plan adopted in Henle's *Anatomy:*

The portal vein, as we know, gathers through its three main branches, the splenic, the superior mesenteric, and inferior mesenteric, and their tributaries, the blood of the stomach, small and large intestine, spleen, and pancreas. From the liver the blood is transmitted to the inferior vena cava through the hepatic vein.

The venous blood of the lower extremities and pelvic region passes through the iliac and hypogastric veins, that of the kidneys through the renal vein to the inferior vena cava.

The hemiazygos vein empties into the azygos vein at the level of the ninth dorsal vertebræ by means of a transverse branch. The azygos empties in the superior vena cava.

In the abdominal cavity the origin of the azygos and hemiazygos veins forms vertical branches connecting the lumbar veins, which empty in the inferior vena cava. The blood of the lumbar veins, therefore, goes partly to the inferior vena cava, and partly to the azygos and hemiazygos veins.

In the thorax the azygos and hemiazygos veins (including the posterior mediastinal and œsophageal) receive the blood of the intercostal veins. The rami dorsales of the intercostal and lumbar veins form the dorsal plexus around the bodies and processes of the vertebræ. They send the rami spinales into the vertebral canal, which receive the blood of the anterior and posterior spinal plexus, and these plexuses communicate through horizontal and vertical branches with each other, and with similarly named plexuses above and below. In the accompanying diagram they are represented in transverse section.

In the abdominal and thoracic portions of the spinal column are the following vertical routes, exclusive of the superior and inferior venæ cavæ: Azygos, hemiazygos, the vertical communications of the dorsal plexuses outside of, and of the plexus spinales anterior and posterior, within the canal.

In the anterior abdominal wall a vertical communication exists between the saphenous and internal mammary veins, which is due to the anastomosis of the inferior epigastric vein with the superior epigastric. From the internal mammary vein the blood is carried either to the anonyma brachiocephalic, or, through the communications of the internal mammary with the intercostal veins, to the azygos and hemiazygos veins.

It must also be noted that the renal veins are connected just as closely with the azygos and hemiazygos veins, and also with the lumbar veins, and with those of the superior intercostals, which, with the azygos and hemiazygos empty into the innominate brachiocephalic veins.

According to Professor Braune,[1] the veins of the thoracic and abdominal cavity have no valves.

The communications between the portal vein and the superior vena cava, inferior vena cava, and azygos vein, are as follows:

1. Communications between the mesenteric veins and those of the abdominal wall—superior and inferior epigastric veins. The blood may go either through the inferior epigastric to the long saphenous vein, and thence through the iliac to the inferior vena cava, or through the superior epigastric to the internal mammary, and thence into the superior vena cava.

2. In those cases in which the umbilical vein remains unobliterated the blood from the portal vein can reach the superior epigastric in an abnormal direction. From there the blood courses in the way described in sub-head 1, or through lumbar and gluteal branches. Bamberger states that the umbilical vein is not infrequently found unobliterated. When the umbilical vein remains open, and in hepatic cirrhosis, we have an obliteration of the portal vein, and a dilatation of veins, forming the caput medusæ, simultaneously takes place. When the umbilical vein is obliterated this dilatation occurs as the result of communications between the mesenteric and superior epigastric veins as described in sub-head 1.

3. Anastomosis of the internal hæmorrhoidal vein (a branch of the inferior mesenteric vein) with the hæmorrhoidal plexus. Through this vein many communications with the hypogastric vein are found—through the middle hæmorrhoidal vein, through the external hæmorrhoidal and internal pudendal veins, through the communicating obturator to the obturator, or through the vesical plexus.

4. Anastomosis between the mesenteric vein and inferior vena cava.

5. Anastomosis between the mesenteric and renal veins.

6. Anastomosis between the splenic and azygos veins.

7. Anastomosis between the small veins of the capsule of Glisson (branches of the portal vein), or between the coronaria ventriculi and the phrenic vein.

8. Anastomosis of the portal vein with the œsophageal, a branch of the azygos.

Finally, new anastomoses between the portal vein and the veins of the abdominal wall may be formed in the adhesions between neoplasms and inflamed viscera within the abdomen.

It would occupy too much of the reader's time to mention in this paper all the possible routes that can carry thrombi formed in the portal system to the right heart, and from there to the lungs. These routes can be seen in the accompanying diagram.

In the diagram the liver and stomach are represented everted, so that the circle of the coronaria ventriculi, and that which the splenic makes with the gastro-epiploicæ, are above. Further, in order to make the anastomosis more clear, many of the veins are represented as short branches only. The plexuses in and about the spinal column are represented in transverse section at the level of the seventh dorsal vertebra; the communications of the intercostals with the internal mammary at the third intercostal space.

The relation, as represented in the chart, of the hemiazygos to the azygos is not the same in all cases. The hemiazygos more frequently empties into the upper portion of the hemiazygos accessoria, which carries the blood of the upper branches of the intercostals by a complicated route to the azygos, and, through the superior intercostal, communicates with the innominate vein. The lower vein, the hemiazygos, empties into the azygos at the level of the ninth dorsal vertebra. Usually, between the hemiazygos and the accessory hemiazygos a small branch carries the blood from one or more intercostal spaces to the azygos.

[1] Die Oberschenkelvene, 1871, page 8.

GENERAL PARESIS OF THE INSANE.

BY GERSHOM H. HILL, M.D.,

SUPERINTENDENT OF THE IOWA HOSPITAL FOR THE INSANE, INDEPENDENCE, IOWA.

THE symptoms of general paresis of the insane were first noticed and described about the year 1800. Esquirol described a typical case of the disease under the name of monomania. His pupil, Bayle, completed the study and gave an accurate description of the disease in 1825. Forty years ago general paresis had not been recognized in this country, but of late years the disease has made its appearance in all our institutions for the insane, and statistics show that it is increasing with alarming rapidity. For this reason, and because of the difficulty of early diagnosis, I have thought that the subject would prove interesting. Furthermore, the disease is important because it is not only incurable, but is sure to terminate in death within a few years.

I use the term *paresis* instead of *paralysis* because the loss of power is slight in the early stages and seldom in its course is any set of muscles or part of the body rendered completely powerless. As the name indicates, the characteristic feature of this disease is a paralysis that is general, but incomplete, occurring in a person whose mind is unsound. It is not my purpose to review the literature of this subject, but to state conclusions reached by my own experience.

Among thirty-seven hundred cases of insanity

treated at the hospital at Independence, there were forty of general paresis. There were seven cases in the first one thousand admissions, seven in the second one thousand, ten in the third one thousand, and sixteen in the last seven hundred. Although the disease was later in making its appearance in Iowa than in the eastern and more populous States, yet cases occur with increasing frequency. There were but two women among the forty cases admitted.

While one-third of the insane in Iowa are foreign-born, only one-fourth of the paretics were foreigners, therefore we cannot claim that the disease is imported.

The oldest paretic was fifty-nine years old when admitted to the hospital, and the youngest was twenty-six; the average age was forty-two years. Hence it will be seen that paresis attacks men while in their most active years.

Ten of the cases were single, and thirty were or had been married. While more than one-half of all our insane men are single, only one-fourth of the paretics are unmarried, consequently the disease is more likely to occur among the married than among the single.

The occupations represented by the forty cases are as follows: Merchants and salesmen, nine; mechanics, seven; laborers, seven; farmers, six; railroad men, four; hotel men, two; lawyer, one; editor, one; and insurance agent, one. One of the women was a dairyman's wife, and on account of her husband being an invalid she not only worked excessively, but was obliged to tax her faculties to the utmost in order to continue the business and support the family. The other woman was an artist, and her reputation for virtue was not the best.

So seldom does an insane woman have general paresis in our population, which is largely rural, that it is hardly worth while to include the sex in our statistical investigations.

Three-sevenths of our insane men are farmers, but only one-seventh of those having general paresis are farmers. While the same number of paretics were day laborers, there are only half as many laborers as farmers among the insane men. On the other hand, the proportion of professional railroad men and merchants who have paresis is large. This fact leads to a two-fold conclusion concerning the causes of this disease, namely, that business men are much more subject to it than those whose employment is chiefly manual labor; and that it is engendered by the vicissitudes and vices of city rather than those of country life. In a New York City asylum a few years ago, among sixteen hundred insane men two hundred and five were found to have general paresis. So far as my own observation extends, the disease is seldom brought on by purely intellectual pursuits.

With regard to education, I may say that paretics are seldom thoroughly educated, nor, on the contrary, are they often very illiterate. They are usually men of a nervous temperament, possessing an unusual amount of energy, disposed to tax their faculties and at the same time to find enjoyment in the indulgence of their animal appetites.

Among the predisposing causes heredity stands first in importance and frequency, and was discovered in twelve of the forty cases. In two there was a history of sunstroke, and in one a history of an injury to the head.

As to the exciting causes, the excessive and continuous use of stimulants is more likely to produce this than other forms of insanity, and the same may be said of excessive venery. More than half of my cases had used intoxicants freely; but several of the men who had formerly been intemperate had not used stimulants for a few years before becoming insane. On the other hand, in most cases of excessive sexual indulgence the habit existed when the insanity became apparent, so that it is impossible to determine whether this habit is the result of a morbid perversion of the appetite, and is only an early symptom of the disease, or whether it sometimes causes paresis. A history of syphilis was found in a few cases, and no doubt syphilis produces this as well as other forms of mental derangement. In men of limited capacity and education, whose minds are not well balanced, overtaxing the mental faculties produces paresis. In this as in other forms of insanity, several of the causes, both predisposing and exciting, are usually present in a case, so that it is difficult to decide which is the chief cause.

In persons having paresis it is usual to find the will or the emotional nature holding sway over the intellect.

Sleeplessness, impairment of the memory, an irritable disposition, changeableness in moods, carelessness in dress and in business affairs, with an inclination to do foolish things, are among the early symptoms; later the patient may have periods of excitement or anger, he may fail to distinguish between his own and the property of others, and may pilfer trifles which strike his fancy. Next he may be inclined to speculate or to assert that he has unlimited possessions. Some are disposed to make presents indiscriminately; others do not claim riches or manifest extravagance, but reveal a comfortable, complacent, self-satisfied frame of mind, although their actual pecuniary condition and their business or domestic relations may be most embarrassing. The tendency from first to last is to weaken all the faculties until the patient is too demented to take any interest in his own relatives and is unable to tell his name.

While these changes are taking place in the mind

the disease of the nervous system is making more or less rapid progress in the impairment of muscular power. The first change to be noticed is a tremor of the lips or facial muscles when efforts of speech are made, especially when the patient is excited; the tongue is unsteady when protruded, and hand-shaking may be done in an awkward and uncertain manner. In the course of time the gait becomes ataxic, the walk is unsteady or shuffling, a lack of endurance becomes apparent, and the patient is worn out by very moderate efforts at work. Hesitation in speech is generally noticed, and an inability to command names and ordinary words, hence conversation is fragmentary and desultory, and aphasia may be well marked. When inquiry is made from day to day and month to month as to the health of these patients, the stereotyped reply is "first-rate."

Finally, these poor unfortunates become disorderly in their conduct, filthy and destructive in their habits, helpless and bedridden. Some of them have epileptiform or apoplectiform seizures, which in the early stages of the disease are usually short and fully recovered from, and the hemiplegia which may thus be brought about usually disappears in a short time. When the patient has lost his powers, both of body and mind, life ends after a prolonged period of unconsciousness.

In none of the cases admitted to our hospital had general paresis been diagnosed, although it might have been, in some instances, had the certificates required of the examining physicians a statement of the form of insanity.

The average duration of the disease in these forty cases, before they were sent to the hospital, was eight months; the shortest time it had existed was one week; the longest time before the patient was admitted was thirty months. In my opinion very few cases run their course without being sent to a hospital for the insane. At times they are lawless and too troublesome to be kept at home. In one-fourth of the cases there was a remission in the mental manifestations of the disease so that such patients seemed quite natural for a time, and some were permitted to visit their homes for a few months. The average duration of the disease in twenty-five cases was two and a half years.

The morbid anatomy as it appears macroscopically shows a "wet" brain. The large quantity of cerebro-spinal fluid between the membranes and in the sinuses indicates atrophy of the brain-substance. In a few cases, however, in which the disease runs a rapid course, the brain is engorged with blood, completely filling the cranial cavity, and in such cases there is a diminution of the serum. The dura is somewhat thickened, the pia opaque and more or less adherent to the convolutions, especially upon the vertex. The arachnoid is also thickened and opaque, and certain parts of it are marked by a granular roughness.

The brain itself is generally pale, flaccid, and diminished in consistence, except when the disease has run a rapid course and been characterized by active mental symptoms, when the cortical substance is likely to be dark and hyperæmic. The cerebellum is also hyperæmic, and less firm in consistence than natural. The membranes of the cord are in about the same condition as those of the encephalon.

There is necessarily great diversity in the appearance of microscopical sections on account of the varying conditions due to age, duration of the disease, a high or low degree of brain development, the effects of alcoholism, and of diseases in other organs of the body. The capillaries are usually dilated and sometimes filled with blood-corpuscles. There is hypertrophy and hyperplasia of the neuroglia, also granular degeneration of nerve-fibres and cells of the cerebral cortex and of the fibres of the subjacent white substance.

The disease usually begins in the medulla, is at first chiefly localized here, and later involves the cord.

RECAPITULATION.

1. As a rule general paresis affects men only.
2. Its victims are men in the full vigor of life, and generally from the middle classes of society.
3. It is usually caused by excesses, either in the use of stimulants, in venery, or in the application of body and mind to business affairs.
4. From its onset it is steadily progressive, is absolutely incurable, and runs its course in a comparatively brief period.
5. It has two separate sets of symptoms, muscular and mental.

THE PROFESSIONAL, MORAL, AND LEGAL RESPONSIBILITY OF THE OBSTETRICIAN IN CASE OF DEATH FROM PUERPERAL SEPTICÆMIA.

BY MANNING SIMONS, M.D.,
PROFESSOR OF SURGERY IN THE MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA, CHARLESTON, S. C.

"THE professional, moral, and legal responsibility of the obstetrician in case of death from puerperal septicæmia," is a question that seems to have dawned upon the profession everywhere. The Chicago Medico-Legal Society[1] recently discussed the question "Whether the failure of a physician to accept and practise the precepts of antiseptic midwifery should make him legally liable and responsible if puerperal fever develops in his puerperal patient during his attendance upon her."

Dr. W. L. Richardson, of Boston, sounds the

[1] March, 1888.

keynote of the public, and to some extent of the professional sentiment on this subject, when he says:

"Since the appearance of Koch's work on bacteria obstetricians all over the world have been endeavoring to find out how best to banish puerperal septicæmia from the lying-in chamber and maternity hospitals, and no one who has carefully investigated the subject denies that it can be banished, if the proper prophylatic measures are taken."

In these views of Dr. Richardson we recognize the prevailing idea that there is a large number of diseases the occurrence of which indicates either negligence or ignorance.

The list of such diseases is increased from time to time by the laboratory work of the pathologist and bacteriologist, and it becomes the duty of the practical, "every-day" doctor to apply to the new views and theories the test of the clinic.

It seems an opportune time to discuss this matter, for in a recent article Dr. W. T. Lusk says:

"There has likewise been, without doubt, an improvement in results among well-to-do classes. Among these there is a widely-diffused belief that puerperal fever is a preventable disease, and that for its occurrence the physician should be held responsible, and this leads to greater painstaking on the part of the latter, even when he is disinclined to accept deductions from modern scientific teaching."

Other medical writers go even further in this direction, and in illustration of this tendency to hold the obstetrician responsible for unfortunate results, we find in the address on obstetrics before the last meeting of the American Medical Association the following strongly-expressed opinion:

"There are a few simple rules pertaining to the subject of aseptic midwifery, and they must be scrupulously and delicately adhered to by every physcian who practises the obstetric art. Failure to do this is to shoulder an awful responsibility, and the consequences of such neglect would be indefensible either in a court of morals or of law."

In order that such responsibility should rest upon the obstetrician, negligence or gross ignorance must be shown, or, to express it in the words of another:

"The surgeon must adopt the means and apply the skill well settled by the highest lights of his profession. He must possess and practically exercise that degree and amount of skill, knowledge, and science which the leading authorities have pronounced as the results of their researches and experience up to the time or within a reasonable time before the issue or question to be determined is made."

The first point, then, for us to consider, is the present state of professional opinion as to the causes of puerperal septicæmia.

All cases of puerperal septicæmia are certainly not alike either in their symptoms and course, in the mode of infection, or in the extension of the disease. It would be a useless task to endeavor to detail the theories that have been advanced to explain the facts, but it is almost a certainty that the general tendency is to attribute the occurrence of puerperal septicæmia to the entrance of disease-producing organisms, or of organisms capable of causing decomposition, and producing poisons chemical in their nature in the discharges of the parturient woman. The poisons are probably absorbed from the lesions in the genital tract, lesions which are liable to occur during the most natural labors. It is even held that it is possible for absorption of septic matter to take place through the unbroken mucous membrane.

We may recognize, then, two classes of cases of puerperal septicæmia:

First. Those in which the poison or septic material originates within the patient, so that she infects herself, the disease then being called *autogenetic*.

Second. Those in which septic matter is conveyed from without and brought in contact with surfaces in the genital tract that are capable of absorbing—the disease then being called *heterogenetic*.

According to the more recent theories, microorganisms are the ultimate cause of the disease in both of these classes.

In the first class there is probably that state called septic intoxication. In the second class there is a true septic infection.

In the first or the so-called autogenetic forms, the decomposition and putrescent changes in the retained coagula, portions of placenta, or membranes could not occur were it not for the presence of microörganisms, not necessarily pathogenic in theira nture; whilst in the second class there are probably introduced peculiar pathogenic organisms, the manifold multiplication of which in the system produces the septic fever.

The cases of the latter class are characterized by a very short incubation, by a rapid course, and by the absence of such marked local lesions as are almost invariably met with in the class of cases first mentioned.

It is by no means certain that these poisons are always directly introduced by the fingers of the obstetrician or the nurse, but it is here that much of the responsibility lies. It is more than probable that the air loaded with germs in certain localities is itself a sufficient means.

This, in brief, is a summary of the present views upon the causation of puerperal septicæmia, and it remains for us to inquire as to what extent, if any, the application of the principles and details of antisepsis and asepsis has operated to reduce the amount and mortality of puerperal septicæmia.

According to Lusk, in a recent article, the ratio of deaths from puerperal septicæmia in New York

City has by no means kept pace with the increase of the population.

Not long since it was thought necessary in order to escape epidemics of puerperal septicæmia in hospitals, that lying-in wards should be placed in temporary buildings.

Now with the more modern plans of management it is found that whereas formerly these institutions furnished nearly one-sixth of all the fatal cases of puerperal sepsis, they, when properly equipped and organized, are the safest places for parturient women. This safety has been secured by modern methods of treatment based on recent observations.

According to the writer of the Address on Obstetrics, already referred to, "there are a few simple rules pertaining to the subject of aseptic midwifery." Our duty will be to enumerate these simple rules as taught by modern authorities. Our next inquiry, and that to which it appears to me discussion should be particularly directed, is as to which of these rules accord with the present state of obstetrical science, and which, therefore, should be accepted in order to avoid the charge of negligence or ignorance.

Before summarizing the present views I will call attention to the influence exercised by the surroundings of the patient in producing puerperal septicæmia independently of conveyance of the poison to the patient by the physician or nurse.

Among the factors to be considered with the surroundings of the patient are the water-supply, the public drainage, the plumbing, and the existence of diphtheria, scarlet fever, or erysipelas.

If these are admitted to be the means of causing puerperal septicæmia, and if it is also admitted that the essential causes of the disease are microörganisms which make their way by one means or another into the blood and tissues of the puerperal woman, then asepsis and antisepsis are properly applied to midwifery.

In treating of the prophylaxis of puerperal diseases we should consider:

First. The surroundings of the patient, including personal and public hygiene.

Second. The management of the patient herself, in order to insure asepsis.

Third. The preparations and precautions to be taken by the physician and nurse before entering upon the management of a case of labor.

It is not necessary for us to occupy ourselves with the matters included in the first class, for it can scarcely be claimed that the obstetrician is responsible for personal or for public hygiene.

The patient at the commencement of labor should receive a full bath, and after this a rectal injection.

The lower abdomen, the inner surfaces of the thighs, the labia, and the anus are scrubbed with soap and water, then washed with pure water, and finally disinfected with a 1-to-1000 solution of corrosive sublimate. The vagina is douched first with soap and water, and then with a 1-to-5000 solution of corrosive sublimate. Most important is the management of the third stage of labor, in order to guard against the retention of clots, pieces of placenta, or membranes, in which decomposition may occur.

The Credé method of expelling the placenta is recommended, and ergot is given to secure thorough uterine contraction, and to prevent thus the formation of clots in the uterus when relaxation takes place, after the removal of the placenta.

In all cases after labor the vagina is douched with a bichloride solution, 1 to 5000.

In cases of protracted labor, of high forceps operation, of version, or of any manipulations by means of which air is admitted to the uterine cavity, the douche of sublimate solution, after preliminary vaginal irrigation, is carried to the uterine cavity. The external parts are dusted with iodoform and are covered with a piece of gauze freshly wet with 1-to-5000 bichloride solution, and over this is placed a pad of oakum. The dressing is changed once in six hours, at which time the genitals are scrupulously cleansed. During the puerperium no vaginal douches are given. These are the precautions as applied to the patient.

The third indication requires that the physician and nurse should, if possible, have taken baths. The physician should not have visited the dead-house, or the wards of a hospital, or the rooms of private patients in which erysipelas, septic wounds or diseases, or the exanthemata are being or have been treated. The hands should be washed and disinfected before each examination during or before labor, and especial attention should be paid to the finger-nails, as the furrows around and beneath them are often the lurking-places of disease-producing matters. Examinations should be made as infrequently as possible.

These indications apply to the nurse with as much force as to the physician, and under no circumstances should the nurse be permitted to make a vaginal examination.

These, in brief, constitute the "simple rules" previously alluded to. But there is scarcely a point in these rules concerning which the opinions of all agree. Thus the pad of oakum over the vulva has been sneered at. The prophylactic douches have also been criticised, especially the ante-partum douches. On the other hand, it has been advised to irrigate the vagina during labor at intervals of two hours with a quart of corrosive sublimate solution. It has also been recommended that the vagina be first thoroughly rubbed with a preparation of creolin and mollin, and then irrigated for ten

minutes with a creolin solution. There is also much difference of opinion as to the use of the douche during the puerperium, and the propriety of intra-uterine douches. It is recommended, however, by many that the bichloride solution be used, of a strength of 1 to 3000, and that an iodoform "bacillus" be introduced. Finally, to add to our confusion, we are reminded by Dr. William L. Richardson, of Boston, that corrosive sublimate douches are a most dangerous weapon.

The question that should be discussed, it seems to me, is, whether these rules should be observed in detail, in order that the obstetrician may escape the charge of negligence or ignorance, and if not observed, to what extent we should depart from them.

Considering the subject as I have endeavored to present it, as briefly as possible, one is impressed with the truth of the following words of an eminent jurist, "It will tend to encompass a most important and anxious profession with such dangers as to deter reflecting men from entering into it."

CLINICAL MEMORANDUM.

MEDICAL.

Two Cases of Vesical Calculus relieved by Buffalo Lithia Water.—CASE I. At three o'clock in the morning of January 2, 1890, I was called to see a woman who I found in a uræmic convulsion. This I controlled by inhalation of chloroform, and after securing diaphoresis I returned home.

Three hours later I was again called in haste, when I found her suffering from an attack of renal colic, which I relieved by a hypodermic injection of morphine. I then obtained from her the following history:

Age thirty-eight years; a widow; father living and healthy; mother died of phthisis at the age of forty-one years. The patient had enjoyed good health until about two years ago, when she began to suffer from dyspepsia. She had been treated for ulcer of stomach, dyspepsia, inflammation of bowels, etc., but had never been examined for stone in the bladder. She had suffered from attacks of renal colic for the last eighteen months, which were increasing in frequency.

In the afternoon I was called again, and found that she was bleeding from the urethra. I examined the urine and found a large number of small calculi, and one the size of a pea, and angular, which, no doubt, had caused the hæmorrhage. I ordered her to take three drachms of solution of potassium citrate, and ten minims of deodorized tincture of opium three times daily, and Buffalo lithia water *ad libitum*. On January 5th I examined her for stone, and found a hard crust on both the anterior and posterior wall of the bladder. Washing out the bladder twice a week caused much improvement in the cystitis, and after the fifth week of this treatment I could not detect the crust, but found in the urine large fragments of calculi. Now, after using the lithia water for three months, the patient is in excellent health, the urine normal, and the cystitis entirely well. The potassium citrate and opium were not given after the second week.

I have used Buffalo lithia water in similar cases with very flattering results, especially in cases with marked lithæmia.

CASE II.—The patient, a soldier, aged sixty-one years, had suffered from cystitis, constant dribbling of urine, insomnia, and chronic diarrhœa, for nearly twenty years. He had been treated for stricture, and was at one time told that he had a stone in his bladder, although he was never examined with a sound. He finally permitted me to examine him for stone, under ether. After some difficulty in passing the sound, I found what I supposed was a large calculus. He would not consent to the operation of lithotomy, and in order to relieve him, I ordered potassium citrate and opium, and Buffalo lithia water *ad libitum*, as in Case I.; for the diarrhœa, I gave the following mixture:

℞.—Deodorized tincture of opium, Castor oil . . . . of each 2 drachms.
Turpentine . . . . . 1 drachm.
Acacia . . . . . a sufficient quantity.
Camphor water . sufficient to make 2 ounces.
Dose, one teaspoonful three times daily.

The bladder was washed out once a week with a solution of boric acid. The urine was frequently examined. On the first examination it contained an excess of urates, uric acid crystals, pus, and blood-corpuscles. After the fourth week the urine contained no pus or blood-corpuscles, but there was still an excess of urates. The patient's general health improved. At the beginning of the eighth week of treatment the urine was nearly normal, the dribbling had stopped, and the diarrhœa had diminished. At the end of the tenth week the irritability of the urethra and bladder was so much less that the sound could be passed without anæsthetization. The calculus was apparently very much decreased in size, but seemed harder. At different times I had noticed small crust-like concretions in the urine, which, no doubt, were from the calculus. It is a question whether the lithia water or the boric acid caused the stone to crumble.

At present the patient is in good health, with no dyspepsia, insomnia, or cystitis.

SAMUEL L. HANNON, M.D.,
200 "D" STREET, WASHINGTON, D. C.

MEDICAL PROGRESS.

Myxœdema and Cretinism.—BIRCHER (*Sammlung klinische Vorträge*, No. 357) believes that the secondary symptoms of myxœdema, namely, hypertrophy of the left ventricle, pallor of the skin, slow pulse, œdema, serous effusions, etc., are dependent upon the associated endarteritis, hepatitis, and nephritis, and that the latter are probably due to alterations of the kidneys. The nutritive fluids are changed, the blood is watery, the number of red corpuscles is diminished, and mucin is deposited in the tissues. The primary cause of all the symptoms is atrophy of the thyroid gland; after total extirpation also a symptom-complex appears which resembles myxœdema in every particular. This operation-myxœdema begins with more severe symptoms, and runs its course more rapidly than the atrophic myxœdema.

The thyroid gland seems to be necessary to life, and, according to the author, apparently prevents the formation of mucin in the tissues, a function that cannot be assumed by other glands. If in a dog the thyroid is extirpated from the neck and the thyroid of another dog is implanted in the peritoneal cavity the animal will live, whereas if there is no implantation of the thyroid the dog will die. It is also possible that the gland, situated in whatever part of the body, supplies the organism with necessary fluids.

Bircher then describes the symptoms following total extirpation of the thyroid for goitre, as seen in five women. In three cases, soon after extirpation, serious symptoms of myxœdema became apparent but spontaneously disappeared. The fourth patient died with epileptiform convulsions soon after the operation. The fourth patient was a cretin, and after the extirpation the characteristic cachexia and tetanic and epileptiform symptoms appeared. Implantation of a piece of thyroid gland in the peritoneal cavity was followed by an improvement of all the symptoms, which, however, was only temporary. After a second implantation there was improvement again which continued, and the patient is now—three months after the implantation—well and able to work.

The author believes that the cretinoid degeneration is an infectious disease, the germs of which are found in drinking-water. Of its symptoms the most important and constant are hypertrophy of the thyroid and arrested growth of the bones, particularly those of the skull. There are three forms of the disease, namely, endemic goitre, the least serious; endemic deaf-mutism; and endemic cretinism (idiocy), the most serious. The author concludes his paper with the following propositions:

1. Myxœdema is a sporadic disease resulting from the loss of function on the removal of the thyroid and is a dyscrasia that chiefly affects the growing organism.

2. Cretinism is an endemic disease caused by long-continued infection, which causes hypertrophy of the thyroid, and if occurring during body-growth causes irreparable arrest of development. — *Centralblatt für klinische Medicin*, October 11, 1890.

Treatment of Prolapse of the Rectum.—MR. HARRISON CRIPPS (*Lancet*, October 11, 1890) contributes a very practical article on the treatment of prolapse of the rectum. In children, he writes, palliative treatment is often very satisfactory, provided that the condition is not caused by phimosis, vesical calculus, polypus of the rectum, etc. If the child is thin, good food and cod-liver oil should be given in order to restore the fat in the ischio-rectal fossæ, the absence of which doubtless facilitates the descent of the bowel. If prolapse can be prevented for two or three months a cure will probably be effected, and with this object in view great care must be exercised to prevent constipation. The stools must never be passed while the child is in a sitting position, but while lying upon its side at the edge of a bed. If, with the child in this position, while the fæces are passing, the mother will draw one of the buttocks upward so as to displace the anus from the median line, prolapse will almost certainly be prevented. The child should remain on its side for some time after the stool, and a pad, held in place by a T-bandage, should be worn for one or two hours. If these measures are carefully carried out operative treatment will seldom be required.

In adults, palliative treatment seldom cures, although it may be tried before resorting to an operation. The patient should be cautioned against straining and should turn on the side as far as possible while passing a stool. Every passage should be preceded by an enema of eight ounces of warm water, and followed by a smaller enema —one ounce— of cold water. If there is superficial ulceration a drachm of tincture of catechu may be added to the last enema.

With regard to operative treatment, in a few severe cases complete removal of the prolapsed portion may be necessary, but before advising such a procedure, the risk of the operation and the probability of causing a stricture of the rectum should be considered. For these reasons complete removal should be reserved for cases in which other measures have failed, and usually linear cautery will be sufficient to effect a cure. This operation is performed as follows: The rectum having been emptied, the patient is etherized and placed in the lithotomy position, and by manipulation the bowel is protruded. With a hot iron four lines are then burned in the long axis of the bowel, one in front, one behind, and one on each side. Paquelin's cautery is not suitable for this purpose; it is too hot when applied and cools too rapidly. The lines should commence within the apex of the protrusion and should terminate at the margin of the anus. They should be about one-fourth of an inch wide and deep enough to sear thoroughly the mucous membrane but not to destroy it. If dilated veins are crossed they should be tied on each side of the burn. The bowel should be returned as quickly as possible, or congestion and swelling may prevent replacement. If the bowel does not protrude at the time of the operation the cauterization may be performed with the assistance of a large duckbill speculum.

After the operation a rubber tube, seven inches long and one-third of an inch in diameter is passed into the bowel for five inches. Strips of oiled lint are then inserted and the space between them and the tube is packed with cotton dusted with iodoform. After forty-eight hours the dressing is removed, the parts are thoroughly washed, and a clean dressing is applied. After a few days the dressings may be dispensed with, but the tube should be kept in place for ten days or longer. The bowels should be confined by means of opium for ten days and then opened by a full dose of castor oil.

Anæsthetic Spray.—DR. B. W. RICHARDSON states that a solution of five grains of carbolic acid in five ounces of ether used as a spray is an excellent local anæsthetic. The anæsthesia produced appears before the skin is hardened by the cold—an advantage in cutting operations. If deep incisions are required a continuance of the spray upon the tissues causes very profound anæsthesia, and dissection can be continued without pain. The anæsthesia has the additional advantage of being more prolonged than that produced by other local anæsthetics, and there is little or no pain after reaction has taken place. The disadvantages of this spray are that in some instances the wound heals slowly and by granulation, leaving an ugly scar; and that in a very large wound there is danger of carbolic-acid poisoning. Dr. Richardson

recommends use of the spray chiefly in cases of ulcerating cancer with pain and an offensive discharge.—*London Medical Recorder*, October 18, 1890.

The Uses of Keratin.—DRS. UNNA and BEIRSDORFF recommend that drugs which irritate the gastric mucous membrane, such as digitalis, squills, salicylic acid, iodide of iron, etc., be given in the form of pills coated with keratin, or in capsules of the same substance. Drugs which diminish the activity or which neutralize the acidity of the stomach, such as tannic acid, nitrate of silver, and alkalies, should be given in the same way. A coating of keratin is also desirable when prescribing drugs that are required to act on the intestinal mucous membrane alone, and is especially valuable in the use of drugs which are given for the purpose of destroying intestinal worms, but which, if introduced into the stomach in the ordinary way, are absorbed to such an extent as to cause toxic symptoms, or to reduce their germicidal activity.

Keratin is obtained by treating shavings of horn with ether, alcohol, and an acid. It possesses the peculiar property of being insoluble in the stomach, but freely soluble in the intestines.—*Lancet*, October 18, 1890.

Menthol in the Treatment of Diphtheria.—For two years WOLF (*Wiener medizinische Presse*, October 12, 1890) has treated his cases of diphtheria by local applications of menthol mixed with sugar in the proportion of one or two parts of the former to twenty of the latter, with excellent results. The powder is applied by means of a large brush at short intervals. Frequently after removing the brush from the throat a shred of membrane is found attached to it. This is washed off, the brush is partly dried, dipped into the powder, and again applied, repeating the process until no membrane can be brought away. By the second or third day improvement is manifest, and a clean surface is soon found in place of the membrane.

"Boric-acid Massage" in Diseases of the Conjunctiva.—In the treatment of granular and follicular ophthalmia and similar conditions, DR. W. M. BEAUMONT (*Lancet*, October 18, 1890) recommends rubbing the conjunctiva with finely-pulverized boric acid. The method is carried out as follows: First, the upper lid is everted in the usual way, and the boric acid is thickly sprinkled on the palpebral conjunctiva. The powder is then rubbed into the conjunctiva with the end of the index finger for five or ten seconds, after which the remaining boric acid may be washed away with a soft brush dipped in "lead lotion," or if there is not much discomfort it may be allowed to remain. The lower lid is then treated in the same manner. In some cases the first few applications cause pain, but after one or two applications tolerance is established. In the earlier applications pain may be prevented by instilling cocaine solution. The procedure may be repeated daily or on alternate days. The condition of the conjunctiva after two or three applications is that of healthy reaction. Dr. Beaumont then reports three cases of trachoma in which this method of treatment gave excellent results.

The Uses of Exalgin.—According to the Paris correspondent of the *Lancet*, M. Desnos has recently undertaken a series of researches upon the action of exalgin. He finds that its influence upon high temperatures is very slight, while as an anodyne its effects are marked. When amounts of from 7½ to 12 grains were given a sensation of vertigo was produced, and sweating, often profuse, was observed in many instances. The sweating was not infrequently localized or most marked over the seat of the pain for which the drug was given. Doses of 12 grains often produced very slight cyanosis. Generally, the drug was well borne by the digestive organs, and eruptions rarely occurred. The urine was usually decreased in amount, and always contained a considerable quantity of exalgin. To relieve pain a dose of 3½ grains will sometimes be sufficient, but 6 grains is an average dose. Twenty-one grains may be given in twenty-four hours in divided doses of 3 grains each. M. Desnos used the drug in various forms of neuralgia, renal colic, and in the lightning pains of tabes. The good effect in intercostal neuralgia was only slight, but in other varieties, including sciatic, and in the pains of tabes the relief was great. It was also of service in the one case of renal colic in which it was used.

An Epidemic of Sore-throat and Erysipelas Due to Infection by Milk.—In the *Glasgow Medical Journal*, October, 1890, is reported an epidemic of sore-throat and erysipelas occurring only in families that were supplied with milk from a certain farm. About eighty cases were observed. The most striking symptom was an intense inflammation of the fauces resembling erysipelas of the mucous membrane. In some cases true erysipelas of the skin developed. In two of the patients, who drank large quantities of the milk, there was a membranous exudate on the lips and tongue, but none on the tonsils or in the pharynx. The temperature was high (102° to 105°) during the first few days of the attack in every case. Convalescence was marked by extreme prostration. Paralysis was not observed and albuminuria was noted in only two cases. Three deaths occurred, all in infants under two years of age.

Unfortunately, no bacterial examinations of the milk were made, nor was there any search for ptomaïnes, but the connection between the epidemic and the milk-supply seems pretty clearly established.

Injection for Gonorrhœa.—The following prescription is quoted by the *Deutsche medicinische Wochenschrift*:

℞.—Antipyrine . . . . 1 drachm.
Sulphate of zinc . . . 7 grains.
Cherry-laurel water } of each 2½ ounces.
Rose water }
Use as an injection.

An Ointment for Prurigo.—According to *La Semaine Médicale*, the following prescription is useful in the treatment of prurigo:

℞.—Resorcin . . . . . 35 grains.
Precipitated sulphur . . 5 drachms.
Carbolic acid } of each . . 7 grains.
Salicylic acid }
Chloral . . . . . 20 "
Vaseline . . . . . 1½ ounces.
Use externally.

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SATURDAY, NOVEMBER 8, 1890.

POISONING FROM THE SURGICAL USE OF IODOFORM.

ALTHOUGH discovered in the latter part of the first quarter of the present century, iodoform was not very extensively used until about ten years ago, when Mosetig von Moorhof made known its virtues for surgical purposes. In late years its employment in the dressing of wounds, as an application to ulcers, and as an agent for the destruction of tubercle as met with in surgical diseases, has been very general. As is well known, the forms in which it is now used are: pure, as a powder; incorporated with gauze; combined with collodion; dissolved in ether, and in emulsion in glycerin or in oil. For injecting into cold abscesses, after their evacuation by aspiration, Verneuil is authority for the choice of the ethereal solution, the strength being five per cent., while the name of Mikulicz is associated with the ten-per-cent. glycerin emulsion, and Bruns has recommended a solution in olive oil of an equal strength. For this latter purpose, the treatment of cold abscesses, iodoform has proved itself a very valuable remedy.

It is, of course, chiefly due to its antiseptic properties, which are universally admitted, even though distinctly limited, that the drug has found favor. That it is not a substance to be applied with an unsparing hand, however, has been known for years; occasional reports of cases of poisoning caused by its use warning us that it must not be looked upon as wholly innocuous.

One of these unfortunate occurrences is reported by M. L. BAROIS (*Archives de Médecine et de Pharmacie Militaires*, No. 8, 1890). In this instance death was caused by the injection of about 55 grammes of a five-per-cent. ethereal solution into the cavity of a large cold abscess under the greater pectoral muscle of the left side. The amount of iodoform used was about 2.75 grammes. Symptoms of ether-narcosis immediately followed the injection, and were succeeded by the toxic effects of iodoform. The symptoms were chiefly cerebral, and continued for nine days, when death in coma supervened.

In addition to an excellent description of his observations in this case, the writer includes a review of the literature of the toxicology of iodoform, his investigation having yielded the discovery of forty-two reported cases, a table of which he presents. From his study of the question Barois found that the symptoms of poisoning make their appearance early and suddenly in the severe cases, and consist of mental depression succeeded by excitement, restlessness, and other signs resembling those of acute meningitis, such as hallucinations, etc. Periods of remission may occur, and gradual cure follow; or abundant sweats, a somewhat elevated temperature, dyspnœa, and a feeble pulse may develop, and a fatal termination is then to be expected. In the young and vigorous the latter are the symptoms which are most likely to occur, while in the old and in those of feeble constitution, the onset as well as the nature of the symptoms will be less intense, comprising anorexia and vomiting, mental depression, weakness of the limbs, and but slight disturbance of the temperature. In this latter type death has seldom been the result.

Search for the explanation of these calamitous effects of iodoform led to the institution of a number of experiments, and the results first obtained by Mundy and Mosetig von Moorhof at the bedside, and by MacKendrick and Binz in the laboratory, pointed to certain narcotic properties possessed by the drug. Hogyes, however, showed that in order to induce toxic symptoms in man it would be necessary to employ a very large quantity, 84 grammes, of the agent if the above theory were correct. A glance at the table given by Barois shows that disaster resulted from the application of much smaller quan-

tities in all but five of the cases. From further experiments conducted by MacKendrick, Binz, and Hogyes, the following conclusions were reached: "First, iodoform given by subcutaneous injection is slowly decomposed in the fat; second, from a solution of iodoform in oil or fat, iodine is separated after several hours; third, the iodine set free forms albuminous clots, which disappear without leaving any traces in the tissues."

These results have since been confirmed, and both clinical and post-mortem evidence harmonize with them. It is iodine, then, which lies at the bottom of the mischief. Iodoform, readily decomposed in the presence of the subcutaneous fat of a wound, or in the tissues surrounding an abscess, liberates iodine, which, in the form of an unstable albuminoid compound, is taken up into the circulation and conveyed to the various organs of the economy, producing in them certain marked changes, as proved by the autopsies of the fatal cases. Before death evidence of its absorption is furnished by the excretion of iodine in the urine in the form of iodide of potassium. The pathological changes are a fatty condition of the liver, the kidneys, and the heart and other muscles, together with less significant lesions. The early appearance and the character of the cerebral symptoms in all the cases would lead us to expect more or less pronounced cerebral lesions to be found on inspection. Nothing more, however, is noted than "hyperæmia of the meninges and some arterial atheromatous lesions."

Two questions which are here pertinent are: First, how much iodoform, locally exhibited, is capable of producing toxic results? Second, in what form may it be applied with the greatest impunity?

The answer to the first of these, according to Barois, cannot be determined. In his fatal case the amount was but 2.75 grammes, while other observers have used much greater quantities without bad effects. Verneuil is said to be of the opinion that poisoning need not be feared when not more than 2.5 grammes are applied. In reply to the second question it may be stated that when incorporated with gauze iodoform may be used with greater safety than in glycerin, oil, or ether.

A glance at the table of the cases of fatal intoxication impresses one with the fact that a notable number of accidents followed operations upon the same anatomical region. Of the forty-two cases thirteen occurred after operations for cancer of the breast, and one after opening an axillary abscess. Adding to these Barois's case we have a total of forty-three cases, in fourteen of which the poisoning resulted from the application of iodoform to the costo-mammary region.

The prevention of iodoform-poisoning will be best insured, first, by limiting the amount applied to that which has been shown to be the minimum fatal dose; secondly, by the exercise of especial care in patients suffering from certain classes of maladies, which, we may assume from our knowledge of the symptoms of iodoform-poisoning, would be easily influenced by the drug, such patients being those affected with cardiac, nervous, or renal diseases; thirdly, by being particularly cautious in the use of the agent in that region in which it has been shown to be peculiarly dangerous—the costo-mammary region.

As to the treatment to be pursued in these accidents, it is recommended that in addition to the removal of the cause—the suspension of the application—if possible, some unirritating alkali should be locally used, to neutralize at once the iodine set free, and prevent its entering into albuminoid combination; also that the alkalinity of the blood should be increased by the internal exhibition of alkaline salts, Vichy water, or bromide of potassium.

In conclusion, we allude to the fact that in the forty-three fatal cases above referred to, but a single one occurred in the practice of American surgeons. This case, reported in 1881, by Dr. Sands, of New York, was one in which colotomy had been performed for rectal cancer, the dressing consisting of powdered iodoform and iodoform-gauze, the amount of the drug used being 6 grammes.

Whatever its virtues, then, iodoform must be recognized as a positively dangerous substance when applied too liberally, and surgeons will best cope with the baneful results which it is capable of producing by putting into practice the principle of "an ounce of prevention," and restricting the amounts employed well within the limit of safety.

THE ETIOLOGY OF SQUAMOUS EPITHELIOMA.

THE occurrence of carcinomatous changes in chronic ulcerations of epithelial surfaces has long been appropriated by the adherents of Virchow's hypothesis of tumor etiology as direct evidence in favor of the correctness of the view of an irritative origin of such growths; and not infrequently such

occurrences are offered as directly opposing the suggestions of Cohnheim as to the embryonal origin of neoplasms. In an article in the *North American Practitioner*, September, 1890, DR. VAN HOOK, after describing the clinical aspects of two cases of flat-celled carcinoma, arising, one in a chronic ulcer of the leg, and the other in the skin near a fistulous opening leading to an osteal necrosis of many years' standing, briefly reviews the pathology of such growths, calling attention to the paper of Boegehold, published in *Virchow's Archives*, in 1882. In the latter paper the writer, according to Van Hook, accepts as conclusive the well-worn theory of Virchow, setting aside Cohnheim's views as valueless for two reasons: "First, because these carcinomata arise in tissues of new origin, where no misplaced embryonal cells could exist; second, because the regenerative activity is here exhausted, whereas the Cohnheim theory demands an increase in this activity."

There are, however, certain suggestions arising from a study of the minute relations of the growth of these neoplasms to normal organization which are worthy of consideration, and which accentuate the incompleteness of the views of Virchow as explanatory of the growth of tumors. That the primary cause of the original wound was of a mechanical or chemical nature, can, in the majority of instances, be clearly demonstrated; but in attempting to explain how that irritation may induce the normal regenerative process to assume a pseudo-formative character, the mechanical theory is wholly inadequate. That any given irritation may excite cellular formation for the purpose of regeneration, or for the exclusion of the source of irritation, is the simple statement of a fact long observed; for the understanding of the manner of transformation of this normal formation into tumor formation further consideration must be invoked.

In the formation of new tissues in the healing of wounds of epithelial surfaces there may be uniformly observed an apparently undue proliferation of the epithelial cells. Near the margin of an ulcer or along the edges of a wound where the proliferation is most marked, minute examination at an early stage usually reveals a distinct line of separation between the forming epithelial cells above and the embryonal connective tissue in the deeper portions of the part; later, however, as if to gain a firmer hold upon the underlying structures, the epithelial layer is prone to send into the young connective tissue beneath, long, slender, branching prolongations, which persist for a considerable period after organization is complete. In this process of organization the new tissues are essentially embryonal in nature, and the process is entirely analogous if not identical, in the formation of the cells, in the character of the vascular supply and the mode of growth, to embryonic generation. Nor can the second objection of Boegehold be maintained, since the regenerative energy of the epithelial tissues, at least, is frequently evident even to superficial observation in these chronic ulcers by the heaped-up, irregular masses of epithelium distributed chiefly along the borders of the sores.

In the process of cicatrization it may be readily conceived that by the contraction of the newly-formed connective tissue, portions of these epithelial prolongations, retaining their vegetable energy and the functions of the dermal layer, may be entirely separated from the normal epithelium above. These islets of displaced growing epithelium, persisting in their penetrating tendency and in their squamous character, constitute the point of departure from the normal epithelial covering to the tumor of epitheliomatous type; and the presence of such actively-vegetating foreign tissue may give rise to the irritation necessary to the long continuance of the inflammation characterizing these chronic ulcers.

Viewed in this light, instead of militating against the proposition of Cohnheim that tumors are essentially accidents of embryonal procedence, the growth of these epitheliomata distinctly favors the verity of such an hypothesis. There exists in these cases a true displacement of cells of an embryonal nature by a species of invagination, which, although occurring in the adult, bears close analogy to the invaginations in the blastodermic layers in embryonic organization. While in many cases of chronic ulceration there seems to be a depression of the regenerative energy of the connective tissues, there is not, as Boegehold would suggest, any lack in the vegetative power of the epithelial elements. On the contrary, epithelial proliferation is as a rule excessive, as shown by the rapid closing of wounds in healing by first intention, and by the masses of epithelial tissue along the margins of an old ulcer; and it is not improbable that there should be regarded as an element in the tumor-growth in these cases, a failure of the normal resistance of tissue to tissue, connective tissue to epithelial, as proposed by Thiersch in relation to the epitheliomata of old age.

REVIEWS.

THE SCIENCE AND ART OF OBSTETRICS. By THEOPHILUS PARVIN, M.D., LL.D. Second edition revised and enlarged. Philadelphia: Lea Brothers & Co., 1890.

THIS excellent text-book has already found its way into the library of so many practitioners and is so generally used by students that the second edition needs but few words from the reviewer. Among the additions noted is Hegar's sign of pregnancy, which is described without comment and with which the author seems to have had no experience. The method of treating eclampsia by the hypodermic administration of morphine is referred to as being considerably used, but here, too, our author refrains from expressing his opinion. Of antisepsis in labor the author, naturally, writes in more positive terms than in the first edition, and clearly prefers creolin to either corrosive sublimate or carbolic acid.

Were we asked to state the chief fault of Dr. Parvin's treatise we would say that the author shows too distinctly his respect for authorities and that he expresses his own opinions too infrequently. For instance, in the section on the resuscitation of asphyxiated infants, four methods of performing artificial respiration are described, and the reader can only infer that Dr. Parvin prefers Schultz's method. Some, however, may deny that this absolute freedom from dogmatism is a fault, and unquestionably it possesses the advantage of requiring students to form their own opinions, besides being discouraging to what has been aptly termed "mental laziness."

The most valuable features of the book are the lucidity of the author's descriptions and a peculiar charm of style which tempts one to read page after page when, perhaps, the intention was merely to look up some forgotten fact. As a whole, we believe that Dr. Parvin's treatise is the best book on obstetrics for undergraduate students that has yet appeared, but that for men in active practice there are one or two other books equally good.

SOCIETY PROCEEDINGS.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, October 7, 1890.

THE PRESIDENT, LANDON CARTER GRAY, M.D., IN THE CHAIR.

DR. W. B. PRITCHARD presented the brain of a patient who died from tuberculous meningitis. When first seen by the speaker, the patient was suffering from obstinate insomnia and headache. A few days subsequently the thermometer showed some elevation of temperature, but this did not exceed 103° until shortly before death. The mental disturbances were very marked from the beginning. There was complete loss of memory, right-sided ptosis, difficulty, and finally loss, of speech, and the rapid development of symptoms of complete bulbar paralysis. The immediate cause of death was apparently involvement of the vagus. There was decided right hemiparesis. A very offensive purulent discharge from the nose was present, and continued until the patient's death. The autopsy revealed over the right parietal bone a cavity with about the circumference of a dime, the necrosis being presumably tuberculous in character. Over the right eye were a linear scar and a depressed fracture, but apparently the brain was not affected by the fracture. At the base of the brain a thick tenacious material was found. The medulla, pons, crura, and cranial nerves were involved, and the dura over the convexity of both hemispheres was covered with an apparently tuberculous deposit.

DR. WILLIAM A. HAMMOND read a paper entitled,

CAN WE DIAGNOSE HYPERÆMIA OR ANÆMIA OF THE CORD AND BRAIN?

The reader said that for many years he had been familiar with a group of symptoms which, from their etiology and general characteristics, are indicative of cerebral disturbance. About twenty-five years ago, after considerable observation and many experiments performed upon the lower animals and upon man, he came to the conclusion that these symptoms are the result of an increased amount of blood in the brain. The theory which he had advanced was, that natural sleep was due to a comparatively anæmic condition of the brain, normal wakefulness to an excess of intracranial blood. Hence, persistent insomnia is necessarily a pathognomonic symptom of cerebral hyperæmia. If this symptom is associated with pain in the head, a feeling of distention, heat, vertigo, and hallucinations, and is aggravated by the recumbent posture and by drugs which increase the amount of blood in the brain, there can be no doubt of the presence of cerebral congestion. The reader had made many experiments with ergot, and is convinced of its efficacy in diminishing the quantity of intracranial blood.

In conclusion, he said that if a patient came to him suffering from insomnia, pain in the head, vertigo, hallucinations, suffusion of the face, cephalic heat, &c., and if the symptoms disappeared under the influence of such remedies as the bromides, ergot, ice and douches of cold water to the nape of the neck, cupping in the same locality, nasal bloodletting, or spontaneous hæmorrhage, he thought it evident that the patient was suffering from cerebral hyperæmia.

In discussion, DR. M. ALLEN STARR said that while he did not oppose Dr. Hammond's views, still his convictions at present were those expressed by Dr. Gray in a paper recently read before the Neurological Society. The symptoms explained by the assumed existence of cerebral hyperæmia can also be produced by other causes. Wakefulness, for example, is often noticed in individuals who are very much exhausted, as in puerperal women after a severe hæmorrhage. He has also observed it in patients who were anæmic. Therefore, that wakefulness necessarily indicates a hyperæmic brain is a theory which is hardly tenable. Certainly hyperæmia of the brain may, under certain conditions, be diagnosed, but it is an open question whether this can be done when only wakefulness is present.

As to drugs, he had been surprised to hear Dr. A. H. Smith and Dr. Peabody state at a meeting of the Practitioners' Society last winter, that they had been treating

cases of supposed hyperæmia of the brain with nitroglycerin and nitrite of amyl. These drugs, which are supposed to increase the amount of blood in the brain, were given upon the hypothesis that they dilated the entire arterial system of the body, and that the brain would thereby, to a certain extent, be relieved of blood. The reasoning at least appeared sound.

DR. J. LEONARD CORNING thought that this reasoning was not scientific. If a patient complained of headache, and had a congested face and a pulse of high tension, and if the symptoms could be promptly relieved by pressure upon the carotids or jugulars, or by bandaging the legs, which should be assumed, congestion or anæmia of the brain? The speaker thought, congestion. If quinine or alcohol aggravated the symptoms, it would be certainly concluded that the trouble was congestion.

DR. GRAY then enumerated the conditions in which the symptoms described by Dr. Hammond might be found. Insomnia, he said, is common enough in mental diseases, worry, overwork, and constipation, and in many conditions in which there is nothing to show that there is hyperæmia of the brain. In the early stages of intracranial syphilis there is a condition somewhat of the nature of hyperæmia. But in Bright's disease, in which also there are hyperæmia and congestion, there is stupor. In some cases of insomnia it is possible to find a certain train of symptoms which would lead to the assumption of existing anæmia, and in others the symptoms would indicate hyperæmia. Experiments have recently been made on the brains of animals, the reports of which differ from those of other experimenters as to the cause of the increased volume of the brain during the waking period. It is an open question whether this increase is not due to cellular activity which increases the amount blood.

As to the association of sleeplessness with the recumbent posture, of course the extended observations of the author of the paper deserve due consideration, but so also do the more limited observations of the speaker, who has not been able to verify the association.

The question is not as to the existence of cerebral hyperæmia or anæmia, but as to whether it can be clinically diagnosed. Flushed face may be dependent upon chorea, general paresis, or injury of the brain, and it is in such cases impossible to say whether the symptom was brought on by hyperæmia alone. The feeling of oppression and sense of fulness in the head are sometimes associated with errors of refraction, insufficiency of the ocular muscles, changes of climate, errors of diet, &c. To assume that in all these conditions there is hyperæmia of the brain, is assuming more than can be proved. It has not been demonstrated by any pathologist whether an increased amount of blood in the cellular tissue of the brain can exist without causing disease of the surrounding parts. It is strange that Dr. Hammond, after five months' study of the subject, cited no autopsies in confirmation of his theory.

DR. C. L. DANA said that it is now generally admitted that there is such a condition as cerebral hyperæmia, and that it can be recognized in its acute forms. Such a state might be produced by drugs, certain neuroses, and trauma. The question is, What is the condition at the base of that functional disorder which has gone by the name of cerebral neurasthenia? Acute and chronic hyperæmia of the brain are conditions admitted to exist, but it is preferable to say "functional cerebral neuroses" or "psychoses" if the hyperæmia is a secondary process, which seems the inevitable conclusion if such cases are closely observed.

Many patients among the neurasthenics have symptoms of congestion of the brain; others of this class do not present the symptoms of typical cerebral hyperæmia. The hyperæmia of the brain is secondary to some disorder of the vaso-motor nerves, or to some functional condition involving the whole nervous system.

To state that sleep is produced by anæmia, and wakefulness by the return of the normal amount of blood to the head, is, the speaker thought, in the light of modern neurological studies, a theory unworthy of further investigation.

DR. HAMMOND thought that his statements were not disproved. When Dr. Dana said that the neurologists of to-day ignored the theory of the physiological changes during sleep—a theory which the speaker might claim as his own—he thought that Dr. Dana was in error. He had stated that innumerable causes of headache existed, and it is only when it is associated with flushed face and vertigo, and when it is increased by a dependent position, that the diagnosis is certain.

CORRESPONDENCE.

MEDICAL LAW AND EXAMINATIONS IN MONTANA.

To the Editor of THE MEDICAL NEWS,

SIR: Prior to the passage of House Bill No. 6, by the Sixteenth Legislative Assembly of Montana, in March, 1889, the restrictions regarding the requirements for the practice of medicine in Montana were few, and carelessly complied with. The Bill mentioned above is "An act to regulate the Practice of Medicine in the Territory of Montana, and to provide for the examination and issuing of certificates to persons desirous of practising the same, and for the punishment of persons violating the provisions of the Act."

There has been considerable consternation in the profession in Montana since this law went into effect, and a number of lawsuits have resulted. When the Act passed there were many undergraduates practising in the Territory, and the new law required all of these who had not been in continuous practice here for at least ten years, to appear before the Medical Board for examination. Those holding diplomas of reputable colleges were granted license to practise. The greatest "kick" is by physicians who came to Montana after the law went into effect, and who had been in practice in other States, and possessed good diplomas—yet were required to submit to an examination by the Board. But after becoming familiar with the manner in which the people have been preyed upon by the unscrupulous "quacks," the intelligent physician at once sees the necessity for such a law—both to the laity and the profession.

Section 1 of the law says: "The Governor, with the advice and consent of the Council, shall appoint seven learned and skilled physicians—who shall have been

residents of the Territory of Montana for not less than two years preceding their appointment—not more than two of whom shall be from the same county—who shall constitute the Board of Examiners for the purposes of this Act." The Board consists of six regulars and one homœopath, who is the treasurer of the Board. Meetings for the examination of applicants and granting certificates are held on the first Tuesday of April and of October of each year, four members of the Board constituting a quorum.

The first meeting of the Board was held in Helena, October 7th, five members and about twenty-five applicants for examination and certificates being present. The members of the Board decided that each applicant should make affidavit in writing, of his age, the time spent in the study of medicine, the college by which he was graduated, and the date of his diploma. The examination was oral, each applicant going before each member of the Board. The questions asked, so far as your correspondent could learn, were straightforward and reasonable, strictly confined to the branches required by law, and well calculated to test an applicant's medical ability—"catch" questions being avoided.

For the benefit of those who are interested, I will give a *few* questions that were asked which may serve to remove the undue prejudice that exists against the law, and the persons appointed to execute it. In Anatomy, the following questions were asked: "What is anatomy? How many cavities in the heart? Where are the semilunar, the tricuspid, and the mitral valves? Describe the vomer, and tell where it is situated. What is the name of the principal artery supplying the stomach? Give the origin and insertion of the gastrocnemius. Name the coverings of the brain, and the situation of each. Where is the seminal vesicle? Name the different divisions of the alimentary canal."

In Physiology, the examination was as follows: "Describe the circulation of the blood. How many kinds of circulation are there? What is the function of the liver, and through what channel does the liver get its blood-supply? What are the principal constituents of the gastric juice? Name the five digestive fluids."

In Materia Medica: "Give the physiological action of aconite, the directions for its use, and the dose. What is opium? Which is the more powerful, hydrargyri chloridum mite or hydrargyri chloridum corrosivum? Give the dose of each. How much antipyrine would you give at a dose, and how often would you repeat it? What is the dose of phenacetin?"

In Practice of Medicine: "What is pneumonia? Name the different stages, and give the treatment of each. How would you treat sick-headache? Name the principal means used in examining for disease of the chest."

In Chemistry and Toxicology: "For what purpose is 'Fehling's solution' used? How would you recognize and treat a case of strychnine-poisoning? Give the symptoms and treatment of a case of arsenic-poisoning. In what way does a fatal dose of the mineral acids cause death?"

In Surgery, some of the questions were: "How would you treat 'Colles's fracture'? What do we understand by antisepsis? Name some of the indications for amputation. What is skin-grafting? How would you treat an extra-capsular fracture of the neck of the femur?"

In Obstetrics: "How would you treat post-partum hæmorrhage? What are the indications for the use of forceps? How would you control convulsions occurring in the course of labor?"

Diseases of the Eye and Ear: "What is iritis, and what is the proper treatment? What is chemosis? How would you treat acute catarrhal conjunctivitis? How would you treat purulent conjunctivitis? Give the treatment for ulcer of the cornea. What is otorrhœa? Give the proper treatment of chronic discharges of the ear?"

Diseases of Children: "How would you differentiate measles from scarlet fever? Can you name an eruptive disease in which the temperature falls to normal when the eruption appears?"

Diseases of Women: "What is metritis? What is cervical endometritis? Give the treatment for the same. What do you understand ovariotomy to be? Name some of the tumors which develop in the female generative organs. How would you treat pelvic abscess?"

No two of the applicants were asked exactly the same questions, and the above questions are only some of those asked the writer and two other applicants. Three applicants were refused certificates, because they declined to submit to the examination and because they had not complied with the law in having attended three courses of lectures of at least four months each, and in being the possessor of a diploma from a reputable medical college.

Section 4 of the Act contains this clause: "In all cases of refusal or revocation the applicant, if he or she feels aggrieved, may appeal to the district court of the county where such applicant may have applied for a certificate." Some rejected applicants are taking advantage of this, and, of course, giving the Board unnecessary trouble.

The fee for the examination and certificate is fifteen dollars, and physicians coming to the State at any time may make application to any member of the Board for a certificate to practise, by presenting a reputable diploma and paying the fee, whereupon he will be granted a temporary certificate, good until the next meeting of the Board, at which time he must appear for examination. A few, defiantly refuse to comply with these provisions, and, against all such, the Board will be compelled to take legal proceedings.

Of the applicants, three were homœopaths and the remainder regulars. One member of the Board remarked that in no instance had he known an applicant to be asked whether he was a regular or irregular.

To my brother practitioners who are contemplating going before the Board and passing through the ordeal of an examination, I would say that my opinion of the Board is entirely different from that which I entertained previously to the last meeting, and that the examinations are perfectly fair. G. T. MCCULLOUGH, M.D.

MISSOULA, MONTANA.

RUSH MEDICAL COLLEGE AND THE NORTH-WESTERN UNIVERSITY.

To the Editor of THE MEDICAL NEWS,

SIR: Your Chicago correspondent made some very misleading statements in his letter published in THE

MEDICAL NEWS of October 11th. Professor Roberts never was connected with the Northwestern University, but he is the President of the Lake Forest University, and to that latter institution his figures referred. The Northwestern University never had or desired any connection with Rush Medical College. A short time ago, after the latter college had made for itself a reputation, and had a large patronage, Lake Forest University made advances to it and secured a union of interests. Lake Forest is twenty-eight miles north of Chicago, on Lake Michigan. The Northwestern University is located at Evanston, also on Lake Michigan. The main campus is just twelve miles from the Court House in Chicago. It has an endowment of over $3,000,000, and has enrolled this year over 2000 students. Dr. Rogers, who succeeded Judge Cooley as Dean of the Law School of Michigan University, recently accepted the presidency of the Northwestern University. This University has in Evanston, the College of Liberal Arts, the Woman's College, School of Oratory, Conservatory of Music, Preparatory Department, and three theological schools. In Chicago are located the schools of medicine, pharmacy, dentistry, and law. At Evanston, and in the care of the University, is the large Dearborn telescope. For the use of scientific students in Evanston there is a large hall, with ample chemical and physical laboratories. In the College of Liberal Arts there is a course designed, whether wisely or not, especially for those intending to study medicine.

The medical department of the University is known among our profession as the Chicago Medical College, of which N. S. Davis, M.D., LL.D., is the Dean. This was the first medical school in the United States that established a graded course of three years, obliging students to pass examinations on the first year's work before taking a second. It was also one of the first medical schools in this country to insist upon a preliminary examination or a diploma from a literary school. Every person before graduation must have been a member of a clinical class of from four to eight, or perhaps ten, who receive special training in the diagnosis of such cases as are met with in office practice—this in addition to the general hospital and college clinics. The result is that a large proportion of the students are weeded out before the diplomas are granted.

A new building is to be erected by the Northwestern University on the south side of the city, for the schools of pharmacy and dentistry and for laboratories for the medical school.

Very respectfully,

HENRY B. HEMENWAY, M.D.

EVANSTON, ILLS., October 15, 1890.

NEWS ITEMS.

Obituary.—DR. HENRY JACOB BIGELOW died at the age of seventy years, at his home at Oak Hill, Newton, Mass., shortly before noon on October 30th, and it may be truly said that in his death Boston has lost a surgeon who in his ability, originality, and ingenuity of invention, has not been equalled in the past or present.

As long ago as 1844 he began to publish a number of surgical works which soon gave him a world-wide reputation, and an essay of his on "Orthopædic Surgery" obtained the Boylston Prize of Harvard University in 1844. He invented what is known as Bigelow's operation of lithotrity, the value of which is universally recognized. The French Academy of Medicine awarded him a prize for the operation in 1882, although the medical profession both in this country and abroad had long before recognized its value and resorted to it. Harvard University conferred the degree of LL.D. upon Dr. Bigelow in 1882, and he was made Emeritus Professor of Surgery in Harvard Medical School.

He retired from the practice of medicine in 1886. For a long period Dr. Bigelow was a sufferer from gastric and hepatic disease and his death was not unexpected by his friends.

The Recent Medical Examination in New Jersey.—Among the answers given to the New Jersey Medical Examining Board by applicants for license to practise were the following:

Question. Write a prescription for acute diarrhœa in a child ten years old.

Answer.

"℞.—Tinctura opii . . . 1 drachm.
" catechu . . 5 drachms.
" kino . . . 2 drachms.—M.

"Take a teaspoonful every three hours."

Q. Name three cathartics.

A. "Compound cathartic pills, hydrar. cum creta, calomel."

Q. Describe a case of cirrhosis of the liver.

A. "Pain in the left side over the liver toward the back. . . ."

Q. Describe briefly how you would investigate a surgical case, and by what method you would write a history of such a case.

A. "I should investigate a surgical case under antiseptic precautions whenever practicable, and should write a history of such a case by the antiseptic system of surgery."

Q. What is an acute abscess?

A. "A deep-seated, burrowing sore."

Q. Describe the operation for tying the external iliac artery.

A. "Etherize the patient, perform everything under antiseptic care, make an incision through the skin, fascia and connective tissue."

Q. Supposing in a case of retention of urine from an enlarged prostate, you could not succeed in passing the catheter by the natural passage, what proceeding would you adopt?

A. "I should at once give diaphoretics, hydragogue cathartics, and apply warm poultices to the abdomen over the bladder. If all this should fail I should perform the operation of laparotomy."

Q. Describe the diaphragm.

A. "The diaphragm is perforated by several orifices. The œsophageal, aortic, venæ cavæ, and pharyngeal orifices."

Q. Describe the circle of Willis.

A. "In the fœtal circulation the blood pouring directly through the heart instead of the lungs forms the circle of Willis."

Q. What is the difference between calomel and corrosive sublimate?

A. "Calomel contains but few corrosive and antiseptic properties. Corrosive chloride of mercury is a powerful corrosive agent and is a strong antiseptic."

Q. In what does human blood differ from that of a frog?

A. "The corpuscles in human blood contain a nucleus, and corpuscles in the blood of a frog contain no nucleus."

Q. Give the condition of the mucous membrane of the stomach in chronic inflammation thereof.

A. "In chronic inflammation of the stomach the mucous membrane presents, on inspection, a bright-red appearance. Large spots of mucous membrane is destroyed. The bloodvessels are congested. There is thickening of the mucous folds."

Q. Give the treatment of acute conjunctivitis.

A. "Apply eye-water every two hours. . . ."

Q. What are the operations for cataract?

A. "The operation for cataract consists in removing the cataract with a knife, which is done by introducing it into the eye back of the crystalline lens and removing that portion which is affected."

A Mohammedan Female Physician.—Dr. Razie Koutlairoff-Hanum, a young Mohammedan woman, who was born in the Crimea, recently passed a creditable examination as physician and surgeon at Odessa, and now enjoys the distinction of being the first woman of her creed to engage in the practice of medicine as understood by western nations.

A Hospital in Central Africa.—As an instance of the civilizing work now being carried on in the Congo Free State, may be mentioned the Bangala-station hospital, in the upper Congo basin, a little less than a thousand miles from the Atlantic coast. It was erected for the employés of the station, and contains forty beds, besides rooms for convalescent patients.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 28 TO NOVEMBER 3, 1890.

ARTHUR, WILLIAM H., *Captain and Assistant Surgeon.*—Is relieved from duty at Fort Bayard, New Mexico, and will report in person to the commanding officer Fort Grant, Arizona Territory, for duty at that post, relieving William B. Banister, First Lieutenant and Assistant Surgeon. Lieutenant Banister, on being relieved by Captain Arthur, will repair to this city, and report for duty to the commanding officer Washington Barracks, District of Columbia.—Par. 12, *S. O. 254, A. G. O., Washington, D. C.*, October 30, 1890.

WAKEMAN, WILLIAM J., *Captain and Assistant Surgeon.*—Is relieved from duty at Fort Bidwell, California, to take effect on the final discontinuance of that post, and will then report in person to the commanding officer Fort Huachuca, Arizona Territory, for duty at that station.—Par. 12, *S. O. 254, A. G. O.*, October 30, 1890.

WALES, PHILIP G., *First Lieutenant and Assistant Surgeon.*—Is relieved from station and further duty at Fort Huachuca, Arizona Territory, and assigned to duty at San Carlos, Arizona Territory, where he is now temporarily serving.—Par. 13, *S. O. 254, A. G. O.*, October 30, 1890.

So much of Par. 2, S. O. 208, A. G. O., September 5, 1890, as directed NATHAN S. JARVIS, *First Lieutenant and Assistant Surgeon*, to report for duty at San Carlos, Arizona Territory, is revoked. On the expiration of his present sick-leave of absence, Lieutenant Jarvis will report in person to the commanding officer Fort Bayard, New Mexico, for duty at that station.—Par. 13, *S. O. 254, A. G. O.*, October 30, 1890.

CONWAY, STEVENS G., *Surgeon.*—Is granted leave of absence for one month, with permission to apply for an extension of fifteen days, to take effect upon the arrival of Acting Assistant Surgeon A. P. Frick at Fort Marcy.—Par. 2, *S. O. 112, Department of Arizona, Los Angeles, Cal.*, October 24, 1890.

EDIE, GUY L., *Captain and Assistant Surgeon* (Fort Douglas, Utah).—Is granted leave of absence for one month, on surgeon's certificate of disability.—*S. O. 80, Headquarters Department of the Platte, Omaha. Nebraska*, October 27, 1890.

By direction of the Secretary of War, the leave of absence granted CHARLES B. EWING, *Captain and Assistant Surgeon*, in S. O. 131, Department of the Missouri, September 22, 1890, is extended fourteen days.—*S. O. 250, A. G. O.*, October 25, 1890.

By direction of the Secretary of War, the following changes in the stations and duties of officers of the Medical Department are ordered:

WOODRUFF, CHARLES E., *First Lieutenant and Assistant Surgeon.*—Is relieved from duty at Fort Gibson, California, and will report in person to the commanding officer Fort Missoula, Montana, for duty at that post, relieving Calvin De Witt, Major and Surgeon. Major De Witt, upon being so relieved, will report in person to the commanding officer Fort Hancock, Texas, for duty at that post.—Par. 6, *S. O. 249, A. G. O., Washington, D. C.*, October 24, 1890.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING NOVEMBER 1, 1890.

STEPHENSON, F. B., *Surgeon.*—Detached from Receiving-ship "Wabash," and wait orders.

MARTIN, H. M., *Surgeon.*—Ordered to the Receiving-ship "Wabash."

STONE, LEWIS H., *Assistant Surgeon.*—Ordered to the U. S. S. "Pinta."

ARNOLD, WILLIAM F., *Assistant Surgeon.*—Detached from the U. S. S. "Pinta," and granted two months leave.

OWENS, THOMAS, *Surgeon.*—Detached from the Coast-survey Steamer "Blake," and wait orders.

BLACKWOOD, N. J., *Assistant Surgeon.*—Ordered to the Receiving-ship "Vermont."

BOGERT, E. S., *Assistant Surgeon.*—Detached from the U. S. Receiving-ship "Vermont," and ordered to the Coast-survey Steamer "Blake."

MOORE, A. M., *Surgeon.*—Detached from the U. S. S. "Kearsarge," and ordered to the Naval Hospital, Mare Island, Cal.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FROM OCTOBER 6 TO OCTOBER 25, 1890.

HUTTON, W. H. H., *Surgeon.*—Detail as Chairman of Board of Examiners revoked; ordered to Washington, D. C., for temporary duty, October 14, 1890.

WYMAN, WALTER, *Surgeon.*—To inspect quarantine stations, October 14, 1890.

LONG, W. H., *Surgeon.*—Detailed as Chairman of Board of Examiners, October 14, 1890.

SAWTELLE, H. W., *Surgeon.*—Granted leave of absence for five days, October 13, 1890.

GASSAWAY, J. M., *Surgeon.*—Granted leave of absence for thirty days, October 11, 1890.

IRWIN, FAIRFAX, *Surgeon.*—Detailed as Recorder of Board of Examiners, October 14, 1890.

AMES, R. P. M., *Passed Assistant Surgeon.*—Granted leave of absence for thirty days, October 14, 1890.

WHITE, J. H., *Passed Assistant Surgeon.*—Granted leave of absence for thirty days, October 24, 1890.

PETTUS, W. J., *Passed Assistant Surgeon.*—To proceed to Vineyard Haven, Mass., for temporary duty, October 9, 1890.

PERRY, T. B., *Assistant Surgeon.*—Ordered to examination for promotion, October 9, 1890.

KINYOUN, J. J., *Assistant Surgeon.*—Ordered to examination for promotion, October 10, 1890.

CONDICT, A. W., *Assistant Surgeon.*—To proceed to Baltimore, Md., for temporary duty, October 18, 1890.

RESIGNATION.

AMES, R. P. M., *Passed Assistant Surgeon.*—Resignation, to take effect November 15, 1890, accepted by the President, October 14, 1890.